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## “INTEGRATED ELDERCARE COURSE”



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# INTEGRATED ELDERCARE

Adj Asst Prof (Dr) Tan Ngiap Chuan

SFP2011; 37(3): 3

Singapore is facing an aging population. By 2030, it is projected that one in five Singaporeans will be above the age of 65 years. Instead of seven adults aged 15-59 years supporting an older person, the number will decline to two. Increase in physical and mental disabilities will parallel the rising life expectancy. The number of caregivers in Singapore will correspondingly increase to take care of the expanding number of people who need daily assistance with activities of daily living.

The caregiver's role is demanding and often is a lifelong commitment. Caregivers' stress is common and will inversely impact on their health and adequacy of care provision for the care recipient. These caregivers need training and other support to mitigate their physical and emotional burden. Studies have shown that caregiver education and support programmes can delay nursing home placement and reduce healthcare costs of care recipients. Interventions targeting and improving caregivers' knowledge are most effective, with benefits arising from training in general problem solving skills, management of both care recipient's behaviour and their emotional response to their caregiving role.

Financial burden is another potential strain to the caregivers. Low-income families with multiple financial and social stressors, often have difficulties coping if they are unable to tap onto the community-based support system. This affects the quality of life of the elderly person and the family and often results in premature placement in a nursing home. Bridging this gap becomes critical and the focus is to strengthen the broad-based support for these caregivers through training programmes, information services and mutual self-help network. Government subsidy for needy patients based on means testing is being introduced.

In recent years, new and expanded community-based services are established to support the caregivers. These include the provision of home or community-based medical, nursing and rehabilitative care, palliative care, home help, day care, counseling and befriending services. A huge challenge now is to coordinate and integrate the various community service providers so that care is patient-centric; otherwise caregivers' attempts to seek multiple service providers will only add to their strains and burdens of care.

Care integration can be achieved at three levels: linkage, coordination and full integration. There are various models of integrated care globally but none has been shown to be effective in all aspects of care delivery. Using multidisciplinary care/case managers who can access a range of health and social services

seem to be a vital factor in the more successful models. Key components of integrated care include (1) assessment of patient's needs, (2), deployment of multidisciplinary team, (3) access to appropriate resources and (4) discharge planning.

Discharging a patient from hospital to the community is a complex process and has its own set of challenges. Organised discharge planning is thus important to ensure proper transition of care and patient's safety. It also reduces hospital length of stay, prevent adverse outcomes after discharge and coordinate services between hospital and community. Discharge planning begins at admission, involves the assessment and identification of high risk patients (with the 8P), determining the post-discharge site of care, medication reconciliation, patient education and instruction and detailing in an adequate discharge summary.

The establishment of the Agency of Integrated Care (AIC) is an official endeavour to provide a centralized agency to coordinate provision of short-term, long-term and social care, and rehabilitative services in the community. At the ground level, the Centre for Enabled Living (CEL) is another initiative to enhance access to social care support services and schemes by functioning as a convenient first-stop information centre.

The ideal goal is for patients to move seamlessly across institutions without having to repeat investigations and to undergo duplicative care. Nonetheless, there remain barriers to overcome, including inadequacy of public funding and infrastructure to cope with rapidly rising demands, insufficient human resources such as trained healthcare professionals to support the community services, interface issues between professionals and disparate cost-benefits.

The family physician plays an important role to facilitate this seamless care integration. As the first point of contact for many of these patients who require integrated care, the family physicians are at an advantageous position to coordinate the care for these patients between different community service providers, assess their needs and to provide caregiver education and support.

A critical area of assessment includes falls risk evaluation, as more vulnerable elderly patients with chronic health problems and associated functional decline including ambulation will be seen at primary care clinics. Thus family physicians should recognize and be alerted to patients at risks of falls and advocate the safe use of various ambulatory aids, which will enhance patient's stability and improve balance for those with unsteady gait. They can prescribe ambulatory aids through an eight-step approach to ensure an appropriate choice is recommended.

The Editorial team has collaborated with AIC to bring out this issue to provide readers with an overview of care integration for elderly patients in the local community. This is a work in progress. It is important for the family physician to be aware of this initiative and proactively fit into this enhanced model of care for the benefits of their patients.

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TAN NGIAP CHUAN, Honorary Editor, Singapore Family Physician

# Chronic Disease Management Programme (CDMP)

The use of Medisave was liberalised for outpatient treatment of chronic diseases since October 2006 through the Chronic Disease Management Programme (CDMP), starting with diabetes. Since then, more chronic diseases have been included and today, Medisave can be used for outpatient treatment of eight chronic disease including Diabetes, Hypertension, Lipid Disorders, Stroke, Asthma, COPD, Major Depression and Schizophrenia.

MOH will be expanding the CDMP to cover two more outpatient psychiatric treatments (Bipolar Disorder and Dementia) from 1 November 2011. Join us at this event to find out more about the programme extension.



Venue **Gallery Hotel** (1 Nanson Road, Singapore 238909)

Date **10 Sep 2011, Saturday**

Time **1.15pm to 4.00pm**

CME points **To be confirmed**

To register, call **+65 6603 6861** or email [fern.sim@aic.sg](mailto:fern.sim@aic.sg)

Time	Programme
1.15pm	Lunch
2.00pm	Introduction & Update on CDMP/PCPS Extension
2.30pm	Bipolar Disorder by Dr Mok Yee Ming
2.50pm	Dementia by Prof Goh Lee Gan
3.20pm	Mental Health GP Partnership Programme by Dr Alvin Lum
4.00pm	End

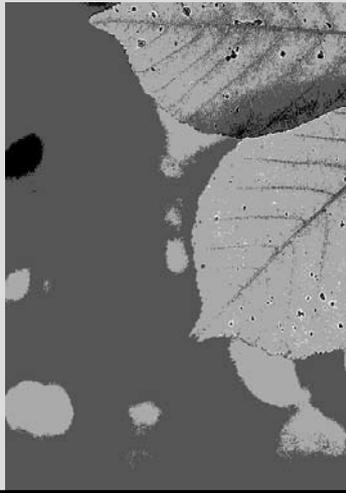
Doctors who are interested to participate in CDMP (Mental Health) are encouraged to attend the training update for all the mental disorders included in the CDMP (Mental Health). This year, two training updates have been planned:

- 1 Dementia:**  
17 Sep - 18 Sep
- 2 Bipolar Disorder and Depression:**  
29 Oct - 30 Oct

To find out more, call +65 6223 0606  
or visit [www.cfps.org.sg](http://www.cfps.org.sg)

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## **DISTANCE LEARNING COURSE ON “INTEGRATED ELDERCARE COURSE”**

- Overview of “Integrated Eldercare Course”
- Unit 1 : Delivery of Integrated Care
- Unit 2 : Role of the Multi-disciplinary Team in Integrated Care
- Unit 3 : Hospital and Community Resources, Financial Policies and Funding Schemes
- Unit 4 : Discharge Planning in Integrated Care
- Unit 5 : A Family Physician’s Perspective on Prescribing Ambulatory Aids for the Elderly
- Unit 6 : Caregiver Support, Training and Enablement

# OVERVIEW OF “INTEGRATED ELDERCARE COURSE”

A/Prof Goh Lee Gan

SFP2011; 37(3): 6-7

## INTRODUCTION

Healthcare in Singapore has hitherto been focused on acute care centric model. There is a need to move towards a new model of care that is holistic and patient centric for those who require integration of care. Whilst not every patient needs integrated care, patients with complex medical needs and social needs will clearly need such care.

The College is happy that the Agency for Integrated Care is sponsoring this Integrated Eldercare Course to update our frontline doctors. The course covers concepts of delivery of integrated care, the multidisciplinary team approach that is necessary, resources and funding schemes, discharge planning, use of ambulatory walking aids, and also caregiver support, training and enablement. We believe this course will be useful to you.

## COURSE OUTLINE AND CME POINTS

This Family Practice Skills Course is made up of the following components. You can choose to participate in one or more parts of it. The CME points that will be awarded are also indicated below.

### Components and CME Points

- Distance Learning Course – 6 units (6 Core FM CME points upon attaining a minimum pass grade of 60% in Distance Learning Online MCQ Assessment).
- 2 Seminars (2 Core FM CME points per seminar).
- 2 Workshops (1 Core FM CME point per workshop).
- 10 Readings – read 5 out of 10 recommended journals (maximum of 5 CME points for the whole CME year).

### Distance Learning Course

- Unit 1 : Delivery of Integrated Care  
*Dr Ng Joo Ming Matthew*
- Unit 2 : Role of the Multi-disciplinary Team in Integrated Care  
*Faezah Shaikh Kadir*
- Unit 3 : Hospital and Community Resources, Financial Policies and Funding Schemes  
*Tan Poh Noi*
- Unit 4 : Discharge Planning in Integrated Care  
*Dr Rukshini Puvanendran*

GOH LEE GAN, Associate Professor, Division of Family Medicine, University Medicine Cluster, National University Health System Senior Consultant, Institute of Family Medicine, College of Family Physicians Singapore

Unit 5 : A Family Physician’s Perspective on Prescribing Ambulatory Aids for the Elderly

*Dr Koh Wee Boon Kelvin*

Unit 6 : Caregiver Support, Training and Enablement

*A/Prof Lim Swee Hia*

## COURSE TOPIC DETAILS

### Unit 1: Delivery of Integrated Care

- Introduction.
- Types of integration.
- Delivery of integrated care.
- Problems and barriers of care integration.

### Unit 2: Role of the Multi-disciplinary Team in Integrated Care

- Introduction.
- Healthcare integration in Singapore.
- Role of Agency for Integrated Care (AIC) in care integration.
- Moving towards a new model of care.
- The Aged Care Transition (ACTION) Team Project.

### Unit 3: Hospital and Community Resources, Financial Policies and Funding Schemes

- Introduction.
- Need for integrated care.
- Navigating the healthcare system.
- Meeting healthcare needs.
- Financing philosophy.
- Singapore healthcare financing schemes.

### Unit 4: Discharge Planning in Integrated Care

- Introduction.
- Goals of discharge planning.
- Discharge planning process should start at admission.
- The higher risk patient.
- Elements of discharge planning.
- The doctor’s role in discharge planning.

### Unit 5: A Family Physician’s Perspective on Prescribing Ambulatory Aids for the Elderly

- Introduction.
- Functions of ambulatory aids.
- When do elderly patients need ambulatory aids?
- What are the common ambulatory aids locally available for elderly patients?
- An approach to prescribing ambulatory aids.

Unit 6: Caregiver Support, Training and Enablement

- Introduction.
- Why is caregiving a concern.
- Caregiving education, support and enablement.
- Key challenges and implications.

**FACE-TO-FACE SESSIONS****Seminar 1: 3 September 2011****2.00pm – 4.15pm**

Unit 1 : Delivery of Integrated Care

*Dr Ng Joo Ming Matthew*

Unit 2 : Role of the Multi-disciplinary Team in Integrated Care

*Faezah Shaikh Kadir*

Unit 3 : Hospital and Community Resources, Financial Policies and Funding Schemes

*Tan Poh Noi***Workshop 1: 3 September 2011****4.30pm – 5.45pm**

Case studies of complex medical case; discharge planning procedural skills

*Dr Ng Joo Ming Matthew***Seminar 2: 4 September 2011****2.00pm – 4.15pm**

Unit 4 : Discharge Planning in Integrated Care

*Dr Rukshini Puvanendran*

Unit 5 : A Family Physician's Perspective on Prescribing Ambulatory Aids for the Elderly

*Dr Koh Wee Boon Kelvin*

Unit 6 : Caregiver Support, Training and Enablement

*A/Prof Lim Swee Hia***Workshop 2: 4 September 2011****4.30pm – 5.45pm**

Use of Aids and Appliances

*Dr Koh Wee Boon Kelvin*

**ABSTRACT**

**Health Care in Singapore has hitherto been focussed on acute care, namely the treatment of episodes of illness or injury for a short period of time so it is necessary to think of integrated care. Delivery of integrated care however, has to be patient-driven depending on their needs. Not all patients need to be integrated. Some can be served well in the normal regular care delivery system. Begin with the end in mind: patients admitted to restructured hospitals need to have their care needs assessed on the first day of admission. Where integrated care may be needed, initiate early referrals to the medical social worker and advanced integrated case nurses to help communicate with patients and relatives in anticipation of care financial, and placement issues. Use of multidisciplinary case management for effective evaluation and planning of patient needs is the way to go. Different intermediate and long-term care facilities have different requirements and referrals need to be made appropriately.**

**Keywords: Integrated care; Elderly; Chronic conditions**

**SFP2011; 37(3): 8-13**

**INTRODUCTION**

Health Care in Singapore has hitherto been focussed on acute care, namely the treatment of episodes of illness or injury for a short period of time. However many people, especially the elderly have chronic health issues; problems that are long term and continuing. They may have more than one chronic condition and may need a variety of health and social services to help them live well. In many cases proper support can allow those with chronic health issues to live in their own homes rather than in institutions as well as avoid hospital services for dealing with complications. But for care to be matching to individual circumstances, the range of services required need to be coordinated and “integrated” by pooling resources from multiple organisations and multiple disciplines.

There are several models of integrated care in the world and in Singapore. Yet to date, no single integrated model of care has been shown to be more effective than the others. As a minimum, successful programmes of integrated care use multidisciplinary care/case managers for those at risk of poor outcomes; and such programmes are supported by a range of accessible health and social services. Decision tools, assessment and care planning instruments, and integrated data systems are important infrastructure elements for successful integrated care.

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NG JOO MING MATTHEW, Head, Medical Services, Bright Vision Hospital

**TYPES OF CARE INTEGRATION**

Integrated care has become a major theme for healthcare organisations throughout the world because of well-documented issues surrounding the poor quality of care delivered to those with chronic conditions. Health organisations which were developed in response to meeting acute needs have been criticised for fragmentation of care, wasting of resources and poor outcomes for those with chronic conditions. To orchestrate integrated care, a set of services need to be linked, coordinated or integrated (Leutz 1999)<sup>1</sup>. These services are multidisciplinary with services delivered by professionals and providers from various sectors.

In Singapore, the formation of the Agency for Integrated Care (AIC) as the national integrator has taken away certain “headache” by providing the linkages of “Cure” to “Care”. Common everyday services that need to be integrated include:

- o Short term care – integration of services of family physicians, hospital specialist, physiotherapy, occupational therapy, palliative care, and home care.
- o Long Term Care – integration of services of the nursing home, chronic sick home, and sheltered home.
- o Social Care – integration of services of social work, family service centers, support groups, volunteer home helps, and meals delivery.
- o Housing – adaptations in the house to meet patient needs such as grab bars, bathing stools, and toilet seats
- o Supportive services – ambulance, financial assistant (PA, CDC), maid applications.
- o Aids and appliances – walking aids, hospital beds, oxygen concentrators, alarm systems.

The concepts of integrated care have been referred to as types, levels and forms based on patient needs and level of integrative activity. (Leutz 1999, Ewards and Miller 2003, Banks 2004, Koder and Kyriacou 2000)<sup>1,2,3,4,5</sup>. There is no single model of integration because the integrating concepts have many dimensions. The form, level or type of integration depends upon the desired outcome. To simplify matters this paper will look at integration within the organisation and across organisations, that is, integration of care across acute tertiary care, intermediate and long term care (ILTC) and primary care.

**DELIVERY OF INTEGRATED CARE**

Integrated care has to be patient-driven depending on their needs. However, not all patients need to be integrated. Many patients can be served well in the normal regular care delivery system such as in the polyclinic or family physician clinic as

they do not have health issues that require support and care across a variety of settings.

### 1. Assess patient's needs

Delivery of integrated care starts with the assessment of patients and his or her needs. One of the laws of integration that we should pay attention to is "You can integrate all the services for some of the people, some of the services for all the people, but you can't integrate all the services for all of the people." There is no "one size fits all" scenario in integrated care. Patient's characteristics and conditions can be related to intensity of connections between services or organisations developed by Leutz (1999)<sup>1</sup>. He distinguishes 3 levels of integration:

#### a. Linkage

This allows individuals with mild to moderate health care needs to be cared for in systems that serve the whole population without requiring any special arrangement. At this level integration implies adequate referrals to guide the patient to the right place at the right time in the system, as well as good communication between the professionals involved, to promote continuity of care when the person goes from services to services.

#### b. Coordination

This requires explicit structures be put in place to coordinate care across acute and other health care sectors. A good example would be to have multiple disciplinary teams.

#### c. Full integration

This level aims to develop comprehensive care programmes or care package attuned to the specific needs of the patients from pooled resources from multiple systems.

Current integrated care networks in Singapore are at the level of Coordination. It aims to coordinate resources to cater to the needs of the patient across organisations and system. The Agency for Integrated care (AIC) is set up to provide such a link. It coordinates and allocates resources based on patient needs and requirements. This can be done through electronic means via its website at <http://www.aic.sg>.

### 2. Multidisciplinary team

Reviews of successful integrated care programmes in America and Canada by Kodner (2006)<sup>6</sup> identified certain key elements to the success of these programmes. Common to all these programmes is the use of multidisciplinary case management for effective evaluation and planning of the patient needs.

The multidisciplinary team provides comprehensive assessment of medical, functional, psychological needs and formulates care plans for the patient. The team should comprise a physician, social worker, a nurse, physiotherapist, occupational

therapist and other allied health personnel. Regular meetings are held to discuss patient medical condition, progress in rehabilitation and to formulate care plans for the patient under their care. In the hospital such teams are convened to look into the discharge planning for the hospitalised patient who has care and/or discharge issues.

### 3. What resources are available?

Community resources are limited in Singapore. Currently there are 61 nursing homes (includes 3 dementia nursing homes, private and VWO run nursing homes), 31 day rehabilitation centers, 6 community hospitals, 2 chronic sick units, 12 dementia day care centers, 3 inpatient hospice, 6 home hospice care providers, and 6 social day care centers with rehabilitation services (Source: AIC). Other community resources include case management services, home help services, family service centers, sheltered homes and destitute homes. As resources are limited, needs assessment should be done for each patient and the proper referrals made via AIC.

Forms can be downloaded and faxed to AIC or via e-referral at <http://www.aic.sg>. A Resident Assessment Form (RAF) to categorise patients' status needs to be done for every patient referred for placement in a volunteer nursing home. For patients with no careers requiring sheltered home placement, referrals will have to be made directly to the homes and not through AIC.

Once the patient is short listed, the homes will conduct an interview and assessment to assess the suitability of placement in the homes. It is important to note that different homes have different requirements and referrals need to be made appropriately. For example, St. Vincent's Home accepts only patient on Public Assistance (PA) and patients need to be able to cook and wash their own clothes.

### 4. Discharge Planning

Patients admitted to the restructured hospitals need to have their care needs assessed on the first day of admission. Initiate early referrals to the medical social worker and advanced integrated care nurses to help communicate with patients and relatives in anticipation of care, financial and placement issues. Allied health personnel, physiotherapist; occupational therapist; dietician; and speech therapist's help is enlisted to optimise patient's physical condition before discharge.

If the patient requires further step-down care for further optimisation, referrals should be initiated early to prevent delays in transfer. Ideally patients should be discharged when clinically stable: when there are no new clinical findings on the planned day of discharge<sup>9,10</sup>. Below is a schematics adopted by the Family Physicians in Singapore General Hospital's Department of Family Medicine and Continuing Care to assess and anticipate patient care needs in the hospital (see flow chart for Care Planning).

## PROBLEMS AND BARRIERS OF CARE INTEGRATION

The ultimate goal in care integration is for patients to move seamlessly across organisations without having to repeat investigations, and receive duplicated care. However this is easier said than done, there are still barriers and cracks needed to be patched. For example, Madam Poo, a 77-year-old lady with background history of hypertension, diabetes, dyslipidaemia was admitted to the acute hospital in 2011 May 9th for 2 days' history of left sided weakness. She was diagnosed to have left corona radiate infarct. Patient was stabilised and discharged for slow stream rehabilitation on 2011 May 25th.

At the community hospital she made good progress and was able to ambulate with minimal assistance with a quads stick by 2011 August 3rd and was planned for discharge pending care giver training to her daughter. She went for review on 2011 August 3rd and was admitted to the acute hospital for management of hyperkalaemia, which resolved after therapy. However despite communicating with the primary team that there is no necessity to send patient back to the community hospital, the acute hospital staff insisted on this, just to be discharged on the same day.

Such problems would have been avoided if the acute hospital accepts the community hospital therapist assessment, avoiding the unnecessary inconvenience to the patient and her caregiver.

Currently we have a number of years of experience working on integrated care and are beginning to see it work. However we still have a long way to go to make it seamless. There are many barriers to be overcome, and mindsets to be tuned to common frequencies. Some of these obstacles are common among countries with integrated care programme with some deeply rooted in the prevailing organisational and policy systems.<sup>7,8</sup>

### a. Funding

Inadequate public funding to provide sufficient services results in waiting list which hamper adequate referrals and care provision. The Ministry of Health has invested in the building of 3 new community hospital next to restructured hospitals and nursing homes; however this will not materialise till the year 2014. The availability of some other funding in some institutions has also resulted in some step down institutions being more expensive than others after means testing. This results in unequal access and patients who need the care not getting it.

### b. Not enough Human resources

Good quality health care professionals in the acute hospital and intermediate and long term care (ILTC) sectors are currently insufficient to meet the demand in the community to effect good continuity of care for patients. It is important to step up the recruitment for these skilled staff and set up training programmes in the university and polytechnic to meet the increased demand.

### c. Interface problems

Frictions in collaboration between professionals may hamper collaboration because of differences in their professional cultures and views. Buy-in will be required from all professionals concerned. Involvement of clinicians in integrated care, means having to spend extra time and effort to learn a new skill and knowledge in addition to their current skills to cope with workloads. In particular, physicians need special attention to ensure that they can cope with new demands, especially if those demands involve only a small number of their patients. Currently, the organisations participating in integrated care do not have a unified IT system that can facilitate transfer of information.

### d. Costs

The provision of quality of care through better coordinated care, continuing of care and holistic of care in integrated care does not translate to better cost savings. The investments that have to be made in staff and support costs, services and start up costs may outweigh the saving achieved from reduced hospital and or long term care admission.

### e. You can't integrate a square peg and a round hole

Underlying difference between health care sectors can frustrate integration effort. Integration efforts can be stymied when providers operate under different rules and regulations. Service coverage, drug availability and payment rules vary from provider to provider in the ILTC and community services can prevent care from being delivered smoothly. Patient disagreements over payment issues can frustrate and delay integration effort and discharges from the acute hospital to community hospitals.

### f. Integration becoming an end in itself

Integration services will work smoothly and welcomed by providers, as long as it does not become a way of solving organisation problems while failing to meet patient needs. It should not be just a tool for reducing the length of stay for patients in the acute hospital, while patient needs and care issues are not solved. A proper care plan should have been worked out before transferring patients from provider to provider and the aim should not just a way to offload problems.

## DISCUSSION

Patient medical conditions and social issues have become too complex for the Primary doctor to handle alone, he will need a team comprising of nurses and allied health personnel to assist him. Patients in hospitals tend to have multiple complex issues and can be on follow up by multiple specialists. To avoid lapses in patient safety and miscommunication to patients and family, the primary physician will need to coordinate and integrate the care. Medications and appointments will need to be rationalised to avoid duplication and fragmentation of

care. Patients with care issues and discharge issues should be identified early and measures put in place early to prevent delay in the transfer to a step-down care facility. The transition of care of patients from the acute tertiary care to the community hospital should not be viewed as a form of reducing the length of stay of patients at the expense of patients' needs. Care issues should be communicated to the receiving provider and measures put in place before transfer. Contrary to expectation, this has not been happening in patients transferred to the community hospital for step-down care.

Further, integrated care delivery from acute tertiary care to ILTC and primary care providers in the polyclinic has been going smoothly for a few years now. However well trained family physicians in the private sector remain an untapped resource in the framework of care delivery<sup>11</sup>. Whatever involvement there are currently are from individual institutions and their right site programmes such as the DOT and renal right site programme of Singapore General Hospital and Eastern Community Health Outreach programme of Changi General Hospital. It has been 2 years since the incorporation of the national integrator, AIC. It is time for it to take the initiative to engage family physicians in the community to work on a systematic plan for integrated seamless healthcare. The vision of seamless integrative care delivery across all providers will only work if all healthcare providers work together.

## CONCLUSIONS

Delivery of integrated care has to be patient-driven depending on their needs. Not all patients need to be integrated. Some can be served well in the normal regular care delivery system.

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## LEARNING POINTS

- **Patients admitted to restructured hospitals need to have their care needs assessed on the first day of admission. If integrated care is needed, initiate early referrals to the medical social worker and advanced integrated case nurses to help communicate with patients and relatives in anticipation of care financial, and placement issues.**
  - **For those who need integrated care, use of multidisciplinary case management for effective evaluation and planning of patient needs is the way to go.**
  - **Different intermediate and long-term care facilities have different requirements and referrals need to be made appropriately.**
-

**Table I. Resident Assessment Form**

**RESIDENT ASSESSMENT FORM**  
(For Nursing Home Residents)

Name: \_\_\_\_\_ IC No: \_\_\_\_\_  
Date of Birth: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Age: \_\_\_\_ yrs Sex: M / F Ethnic Group: C / M / I / O

Rating	A	B	C	D
Q1 Mobility (Guide Bk Pg1)	Independent 0	Requires some Assistance (physical/ assistive device) 3	Requires frequent assistance/ turning in bed 10	Requires total physical assistance 16
Q2 Feeding (Guide Bk Pg 2)	Independent 0	Requires some Assistance 3	Requires total Assistance 10	Tube-feeding 10
Q3 Toileting (Guide Bk Pg 3)	Independent 0	Requires some physical assistance 3	Requires commodes / bedpans / urinals 8	Incontinent and totally dependent 16
Q4 Personal Grooming & Hygiene (Guide Bk Pg 4)	Requires no assistance 0	Requires assistance for some activities/ supervision 2	Requires assistance for all activities 4	Bed/ trolley bathing 6
Q5 Treatment (Guide Bk 5-6)	Daily Medication Oral/Topical : 1 pt 0	Daily Medication Oral/Topical : 1 pt Injection: 2 pts 0	Daily Medication Oral/Topical : 1 pt Injection: 2 pts Physiotherapy:4 pts 0	Daily Medication Oral/Topical : 1 pt Injection: 2 pts Physiotherapy:4 pts Sp*procedures pts mins@1 pt/ 5 min 0
Q6 Social & Emotional Needs (Guide Bk pg 7)	Nil 0	Occasionally 1	Often 2	Always 3
Q7 Confusion (Guide Bk Pg 8-9) ▪ loses way ▪ loses things ▪ disorientated	Nil 0	Occasionally (1-3 times a week) 3	Often (4-6 times a week) 8	Always (Daily) 10
Q8 Psychiatric Problems (Guide Bk 10-11) ▪ hallucination ▪ delusions ▪ anxiety ▪ depression	Nil 0	Mild Interference in Life 2	Moderate Interference in Life 4	Severe Interference in Life 6
Q9 Behaviour Problem (Guide Bk pg 12-13) ▪ restless ▪ disruptive ▪ absconds ▪ uncooperative	Nil 0	Occasionally (1-3 times a week) 3	Often (4-6 times a week) 10	Always (Daily) 16

\* Sp = Special

#Pt = Points

Total Points:

Category: I / II / III / IV

Category

I: <6

II: 7 – 24

III: 25 – 48

IV: > 48

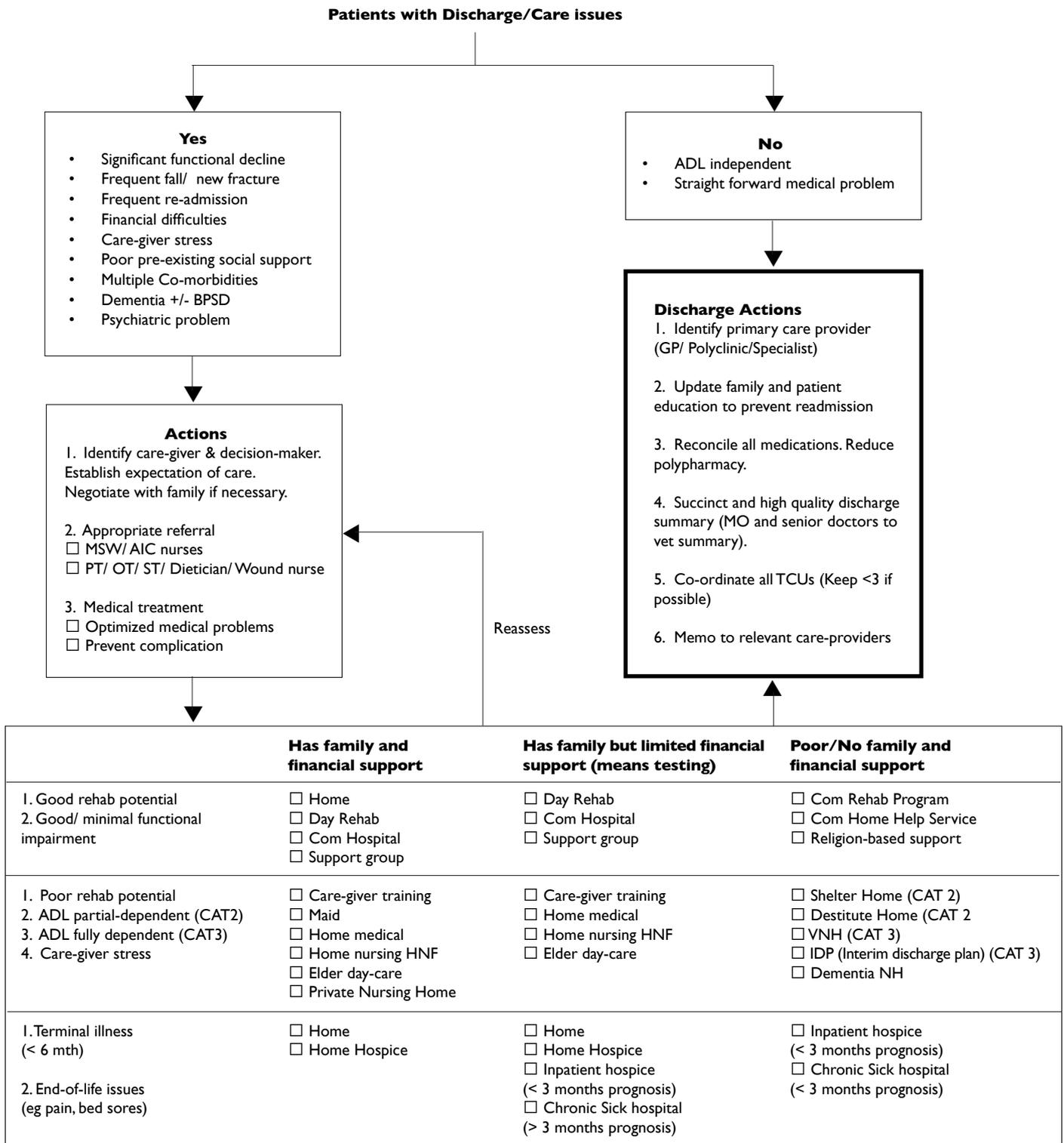
Name of Officer Completing the RAF

Date

Signature

BVH-ND-059  
01/07/02

Figure 1 - Flow chart for Care Planning



**ABSTRACT**

**Integration of care has become a major theme of healthcare organizations throughout the world and Singapore is no exception. The Agency for Integrated Care (AIC) plays the role of National Integrator in this endeavour. By and large the healthcare model in Singapore today is an acute care centric model. This has strengths but also has weaknesses and gaps that must be addressed through health care integration. Hence, Singapore is moving towards a new model of care — managing holistic approach of care for service needs and taking a patient-centric approach. We need to leverage on the multidisciplinary base of acute care healthcare providers to form the multidisciplinary base for intermediate care and long term care integration. For patients with complex medical and social needs, the ACTION Team project seeks to develop referral management teams to enable and support care integration and transition care for these patients.**

SFP2011; 37(3): 14-19

**INTRODUCTION**

This paper covers the following aspects of integration of care in the Singapore setting.

- Healthcare Integration in Singapore
- Role of AIC in integration – National Integrator
- Moving towards a new model of care – managing holistic approach of care for service needs
- The experience of the Aged Care Transition (ACTION) team project for patients with complex medical and social needs.

**HEALTHCARE INTEGRATION IN SINGAPORE**

Integration of care has become a major theme of healthcare organizations throughout the world and Singapore is no exception. Figure 1 shows the direction that Singapore is taking in developing new services and community engagement to implement the healthcare integration vision. There will be integration of short term care delivered by family physicians, acute hospitals with intermediate care in community hospitals, and on to integration with long term care in the community, day rehabilitation and care services, and back to the patient’s home.

There is also the translation of integration into regional healthcare services as shown in Figure 2. The links will be through IT systems (the electronic health records (EHR), the 4

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restructured hospitals – KTPH, JGH, TTSH, and CGH, the 2 Academic Medical Centres (AMC) – NUHS, and Outram, with co-ordination of care across regions by the Agency of Integrated Care (AIC).

**ROLE OF AIC IN CARE INTEGRATION**

For integration of care to be successful there is a need for a National Care Integrator. This is the Agency for Integrated Care (AIC) in the Singapore setting.

**Table 1. History of Agency for Integrated Care**

Year	Name	Key Functions
1992	Care Liaison Service (Ministry)	Nursing homes and chronic sick units placements (A)
2001	Integrated Care Services (Healthcare Clusters)	(A) + Coordinate the referrals to day rehabilitation centres (B)
2008	Agency for Integrated Care (Healthcare Clusters)	(A) + (B) + Coordinate referrals to home medical, home nursing and home therapy + Aged Care Transition (ACTION) Teams

**History of Agency for Integrated Care**

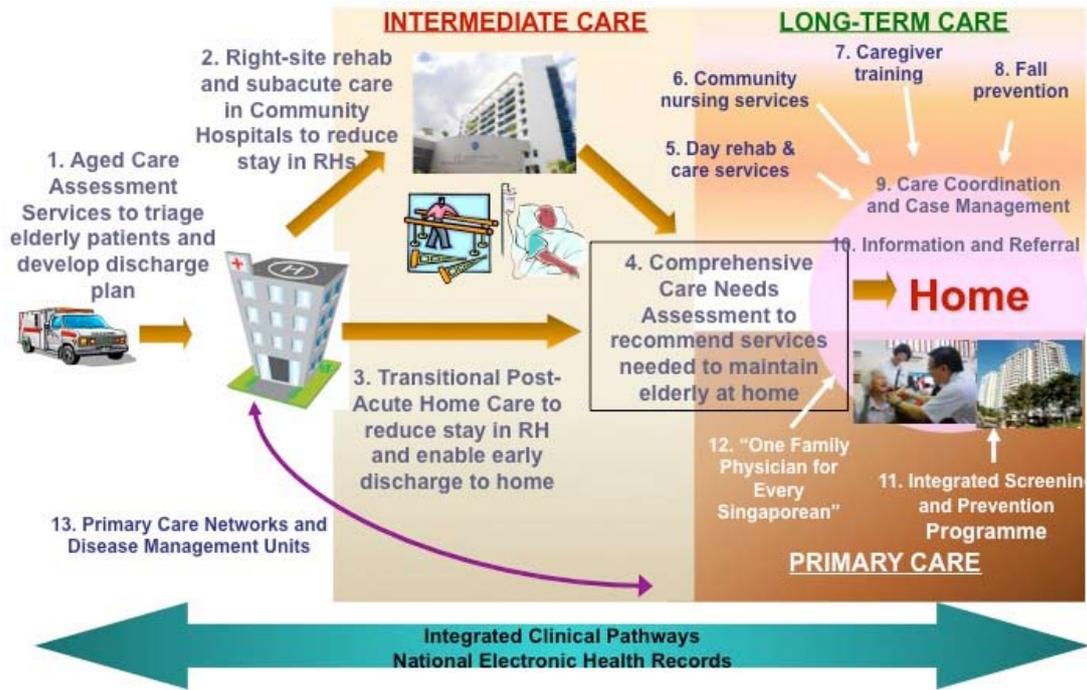
This is shown in Table 1. It has thus taken the Care Liaison Service 16 years to evolve from a service of nursing home and chronic sick units placements in 1992, to the Integrated Care Services which besides the function to nursing home and chronic sick units placements also co-ordinates referrals to day rehabilitation centres from 2001 onwards. In 2008, it the Integrated Care Services became the Agency for Integration of Care (AIC) with the additional tasks of co-ordinating referrals to home medical, home nursing, and home therapy. AIC is also running the Aged Transition (ACTION) Team project to help patient transition from hospital to their homes or community by streamlining and co-ordinating care services thereby optimizing patients’ outcomes throughout and following an episode of illness. More of this will discussed later.

**Creating a National Integrator**

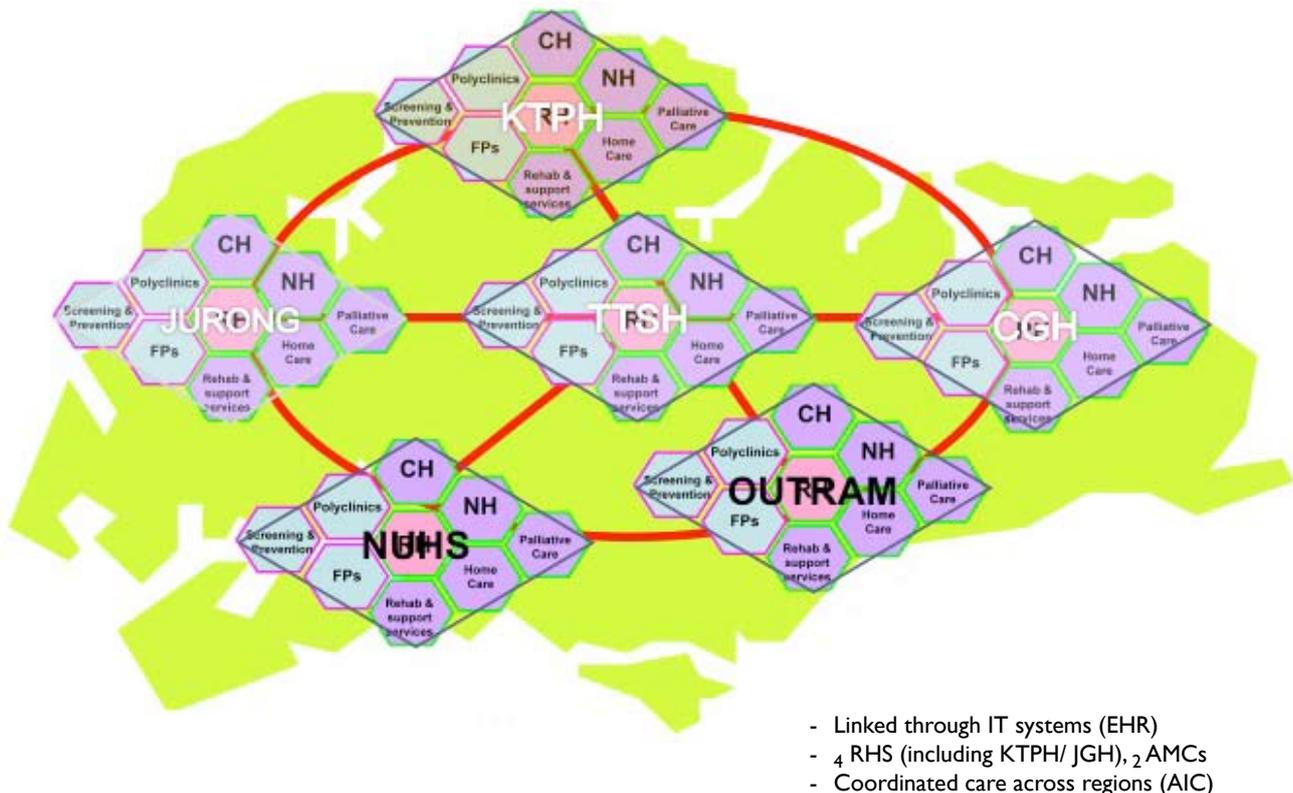
Creating a National Integrator out of the Agency for Integrated Care creates a body which functions as the:

- Facilitator for integration of healthcare services.
- Informed neutral Buyer of services on behalf of patients.
  - o Implement a national Care Assessment framework.
  - o Referrals to intermediate and long-term care services.
  - o Case management for complex cases.
- Developer of primary care and community care services.
  - o Improving quality of long-term care services.
- Body which works closely with Offices of Integration in each Restructured Hospital Service to operationalise and monitor the progress of the RF projects.

**Figure 1. Developing New Services : Community Engagement**



**Figure 2. Translating Integration to Regional Health Services**



### AIC today as a National Integrator

AIC has the following tasks:

- As the “glue” for integration of healthcare services.
- Implement national care assessment framework.
- Referral to intermediate and long-term care services.
- Case management for complex cases.
- Development of primary care and community care services.
- Improving quality of long-term care services.

AIC has to integrate the different services in the current healthcare landscape in Singapore. See Figure 3. By and large the healthcare model in Singapore today is an acute care centric model. See Figure 4.

### Weaknesses & Gaps in Current Healthcare System in Singapore

In Singapore the acute sector is well built up, BUT there are many weaknesses and gaps that must be addressed:

- Lack of transfer structures and mechanisms to plan discharge and post-discharge.
  - o Good quality outcomes within acute, but poor quality outcomes for episode and patient.
  - o Unnecessary readmissions.
  - o Longer stay than necessary in acute.
- Non-acute sector not ready to play an equal role to the acute sector.
  - o Largely VWO-driven and limited funding.
  - o Difficulty gaining capacity and capabilities.
- Patients are “lost” in the system.
  - o Healthcare system and offerings remain opaque to patients and their families.

Problems will worsen with the growing elderly population.

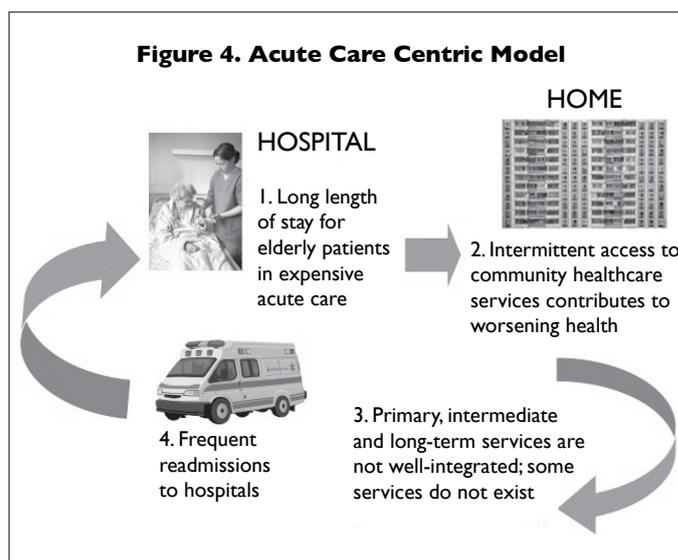
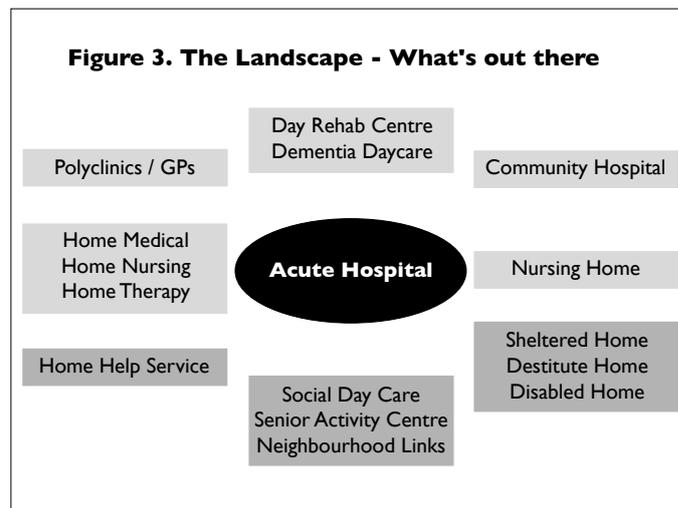
### MOVING TOWARDS A NEW MODEL OF CARE

The solution in solving the problems in the health care system is to move towards a new model of care that adopts a holistic approach of care for service needs. The vision is to integrate care by taking a patient-centric approach. The different healthcare service providers and their services need to fit seamlessly into one another like a honeycomb for primary care, acute & intermediate care, and long-term care. This is shown graphically in Figure 5.

#### Multidisciplinary base in acute care

We need to leverage on the multidisciplinary base in acute care. The healthcare providers forming this multidisciplinary base are:

- Doctors.
- Nurses.
- Physiotherapist.



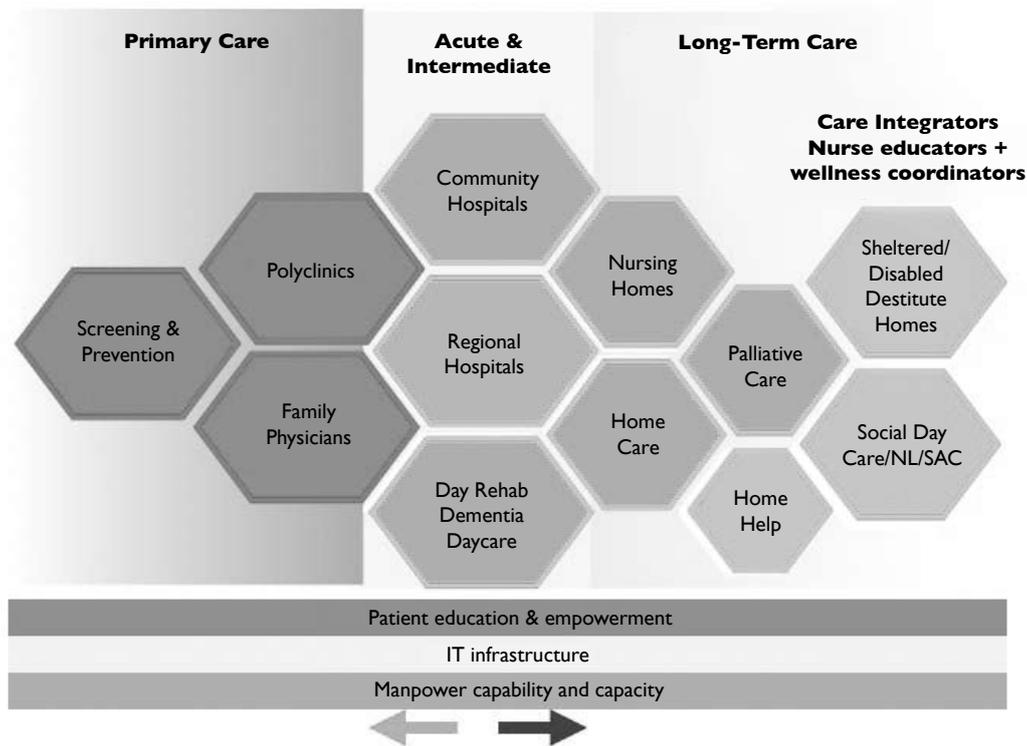
- Occupational therapist.
- Speech therapist.
- Medical social worker.
- Pharmacist.
- Case managers.

#### Referring source of care

The referring source of care into the other settings of care come from acute care. It is therefore imperative for acute care providers to have the following:

- Clinical Skills.
- Accurate & Complete Assessment.
- Pro-active involvement in discharge planning.
- Skills & Knowledge in discharge planning.
- Healthcare landscape & continuum of care.
- Right siting.
  - o Community resources.
  - o Social / environmental.
  - o Health Care financing.

**Figure 5. Integrate care by taking a patient-centric approach**



**Challenges: acute care**

We will also need to deal with the challenges of acute care. These are:

- Time constraints due to short length of stay.
- Teams working in silos.
- History from various sources.
- Abundance paper work.
- Skill mix of staff.

The challenges result in several suboptimal outcomes:

- Poor referral quality.
- Inadequate history.
- Incomplete information.
- Inaccurate information.
- Wrong referral.

AIC’s strategy is develop referral management teams to enable and support care integration and transition care for patients with complex medical and social needs.

**Referral Management Team**

The referral management team has several tasks. These are:

- Screening and Triageing.
- “Case Management”.
- Coordination of services.
- “Safety Net”.

**Community/Intermediate & Long Term Care (ILTC) setting**

In the community/ILTC setting, healthcare providers need to have the following:

- Clinical Skills.
- Care Needs Assessment.
  - o Multi-dimensional care needs.
- Case Management Skills.
  - o Health and Social service landscape.
  - o Care planning and coordination with stake holders such as VWOs, social service & healthcare professionals.
  - o Linking and accessing community resources.

An Everyday Case...

- 70-year-old female patient with multiple co-morbidities.
- Has identified caregiver at home.
- On multiple medications.
- Repeated hospital admissions within a short time.
  - o Burnout caregiver.
  - o Gaps in care services.
  - o Care providers with silo mindset.

There is a need to fill the gaps in the current health care delivery system under the integrative efforts of AIC working in synergy with all providers.

## THE AGED CARE TRANSITION (ACTION) TEAM PROJECT

### About ACTION

ACTION stands for Aged Care Transition Team. The details are:

- Aged Care Transition (ACTION) Team is a 4-year, 22-million project funded by the government.
- The aim is to help patients make the important transition from hospital into their home or community, by streamlining and coordinating care services thereby optimizing patients' outcomes throughout and following an episode of illness.

### The team

The Aged Care Transition (ACTION) team is made up of Care Coordinators, stationed at 5 acute hospitals (NUH, CGH, TTSH, SGH and AH) and 1 national centre (NHC) to help patients make the important transition from hospital to their home and community. By placing these Care Coordinators to these pilot sites, the project aims to establish a single contact point for these patients in acute hospitals, AIC office and the community service providers.

### Pillars of care integration and processes

Figure 6 shows the three pillars of care integration. Figure 7 shows the ACTION processes.

The 3 pillars (Figure 6) are:

Pillar 1 – Equip team with capabilities to provide transition care – Initiatives: infrastructure setup. Capacity building. Engaging the stakeholders.

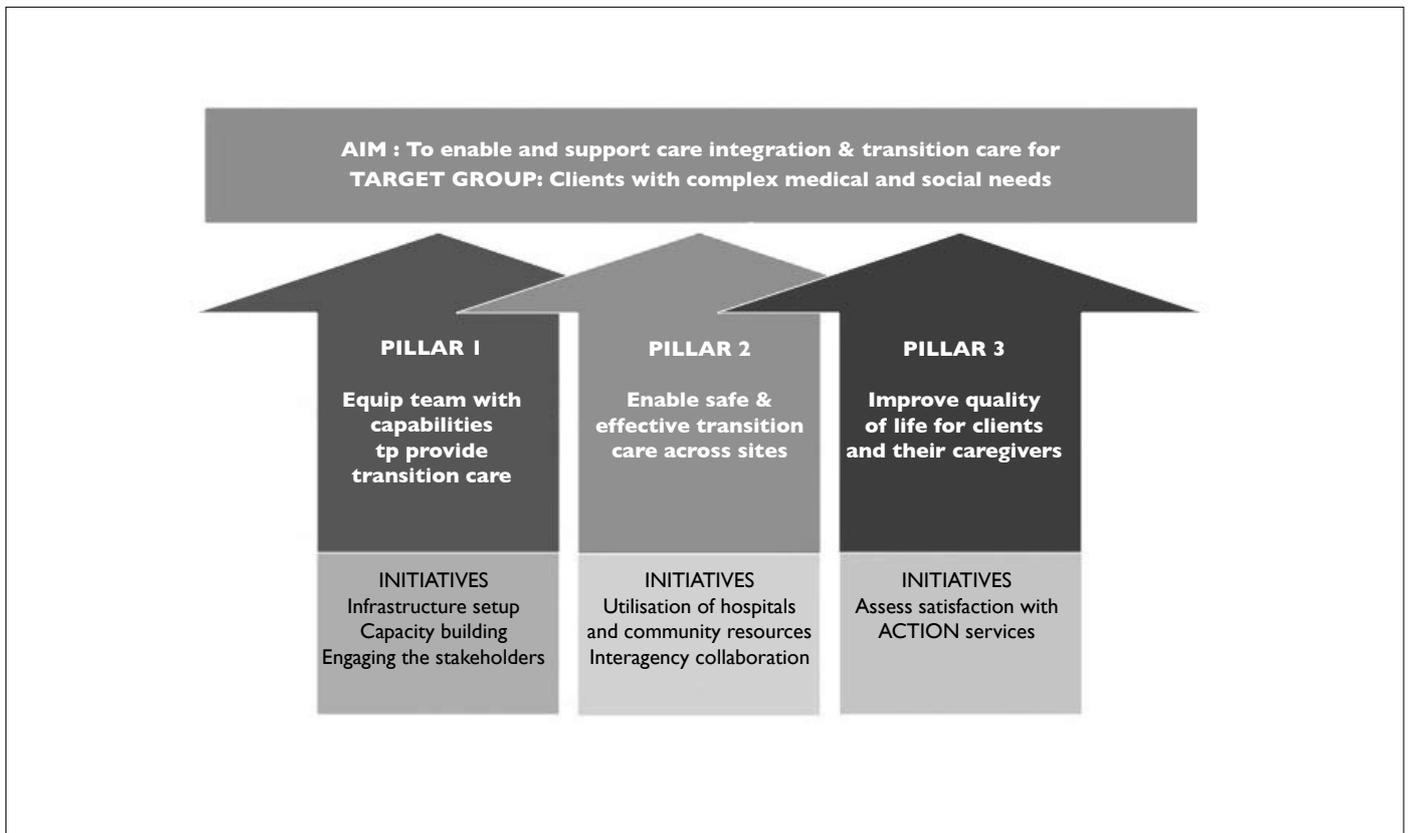
Pillar 2 – Enable safe & effective transition care across sites – Initiatives: Utilisation of hospital and community resources. Interagency collaboration.

Pillar 3 – Improve quality of life for patients and their caregivers – Initiatives: Assess satisfaction with ACTION services.

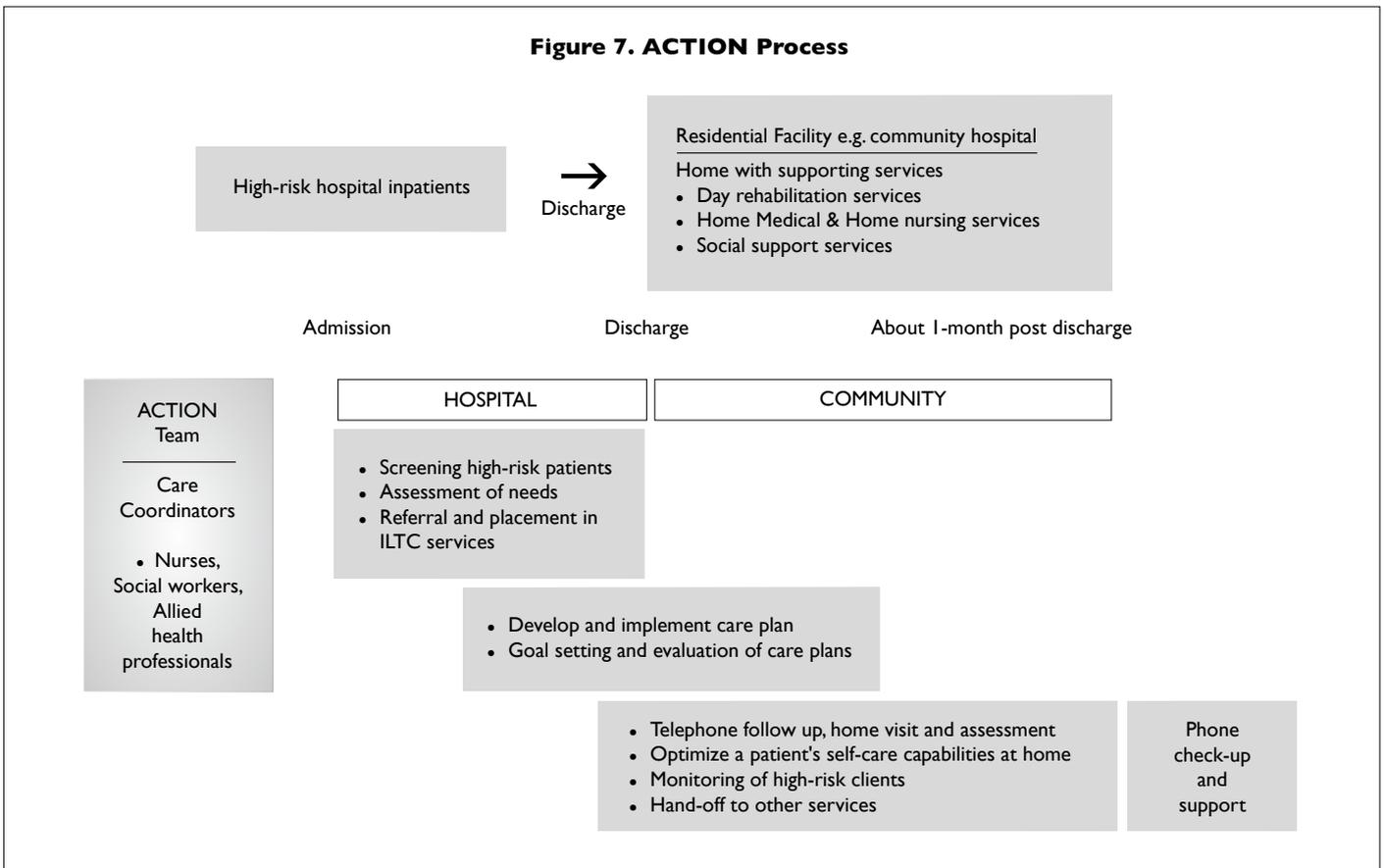
Profile of those requiring ACTION services

- Since start of project 10,000 patients have been managed through ACTION services.
- More than half of patients managed were aged 70 years and above; had 3 – 6 co-morbidities and above; and were taking more than 5 medications.
- The top 5 reasons requiring interventions were:
  - Significant functional decline.
  - Complex medical issues.
  - Caregiver unable to cope.
  - Confusion/cognitive impairment.
  - Has no caregiver.

Figure 6. Aged Care Transition (ACTION) Team



**Figure 7. ACTION Process**



**CONCLUSIONS**

- Effective care integration is possible
  - o Understanding the impact of individuals’ actions on the care supply chain -- Calls for greater understanding, collaboration and tolerance across all stakeholders (health, social, environment, infrastructure development).
  - o About embracing traditional values in new practices
    - The importance of strong fundamentals.
    - All about building relationships.
- With integration comes opportunities for true innovation
  - o Consumer-centric services and programmes that meet their true wants and needs
  - o Resource-effective — Leveraging and maximising on existing infrastructure and resources (manpower, finances) while encompassing business discipline.

**LEARNING POINTS**

- **By and large the healthcare model in Singapore today is an acute care centric model.**
- **This has strengths but also has weaknesses and gaps that must be addressed through health care integration.**
- **AIC plays the role of a national integrator.**
- **To succeed in healthcare integration, Singapore needs to move towards a new model of care that adopts a holistic approach of care for service needs and take a patient-centric approach.**
- **We need to leverage on the multidisciplinary base of acute care healthcare providers to form the multidisciplinary base for intermediate care and long term care integration.**
- **For patients with complex medical and social needs, the ACTION Team project seeks to develop referral management teams to enable and support care integration and transition care for these patients.**

**ABSTRACT**

**With the growing ageing population in Singapore, and longer life expectancies, more hospital and community resources will be required. Effective optimization of our resources to make the best use of the health dollar is mandatory. Appropriate integration of care, especially in those who have complex medical and social needs will be one way of making the best use of available resources and funds. The financing philosophy of Singapore's healthcare delivery system is based on: individual responsibility, and community support. To help Singaporeans to pay for their medical expenses, the government has put in place a financing framework, which consists of Medisave, Medishield, Medisave-approved Integrated Shield Plans and Medifund. To these have been added the Eldershield and IDAPE, as well as MOH subsidies for the needy in the PCPS, acute hospital services, intermediate care services, and long term care services. The quantum of subsidy for the needy is determined by means testing. Together, these frameworks form the 5 layers of support for healthcare financing in Singapore: First layer – Heavy government subsidy of up to 80% of the total health bill in acute public hospital wards. Second layer – Self funded or family funded financing e.g. savings and Medisave. Third layer – Insurance e.g., MediShield, ElderShield. Fourth layer – MOH subsidy for the needy – PCPS, Acute, ILTC services – the quantum of subsidy depends on means testing. Fifth layer – “Safety net” financing – Medifund.**

**Key words: hospital resources, community resources, financial policies, funding schemes, Singapore, means testing, Medisave, MediShield, Medifund, ElderShield, IDAPE**

**SFP2011; 37(3): 20-26**

**INTRODUCTION**

With the growing ageing population in Singapore, and longer life expectancies, more hospital and community resources will be required. Financial policies and funding schemes must be in place to meet and provide for these healthcare needs. Effective optimization of our resources to make the best use of the health dollar is mandatory. Appropriate integration of care, especially in those who have complex medical and social needs will be one way of making the best use of available resources and funds.

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**NEED FOR INTEGRATED CARE**

Appropriate integration of care is needed in Singapore:

- The ageing population in Singapore, coupled with longer life expectancies and higher incidence of chronic disease, is shaping the way we deliver care. By 2030:
- Our resident population aged 65 and above is projected to triple from 300,000 today to 900,000.<sup>1</sup>
- Coupled with our declining birth rate, one in five residents will be aged 65 and above, as compared to one in eleven residents today.<sup>2</sup>
- We must optimise our resources as the cost of acute care at tertiary hospitals is high and we cannot rely on acute care infrastructure to provide long-term care. For patients who no longer require acute care services but are unable to return home due to medical conditions, they may rely on Long-Term Care services to continue their treatment.
- As most of the elderly prefer to remain within the community and not be institutionalised, efficient and appropriate community services must be developed to support the elderly in the community.

**NAVIGATING THE HEALTHCARE SYSTEM**

How can we ensure that our patients transit seamlessly from one provider and one healthcare setting to another, and receive the appropriate level of care?

Appropriate integration of care is the way to go. The Agency for Integrated Care (AIC) was set up to oversee, coordinate and facilitate all efforts in integrating acute care and Long-Term Care services. To recap, AIC aims to achieve best health outcomes for our patients by:

- Working with partners and stakeholders in the healthcare industry to drive the development of a patient-centric and integrated care model in Singapore.
- Being the primary body to advise and guide patients and their families on the use of appropriate healthcare services.
- Helping the Professionals, ILTC partners and the general public to better navigate the healthcare system.
- Coordinating, managing and monitoring patient referrals to a greater range of Long-Term Care services.
- Playing an active role to support the growth and development of the Primary Care and Long-Term Care sectors, as critical partners in our healthcare system.

**MEETING HEALTHCARE NEEDS**

It is important to know the available resources to support a patient as he navigates the healthcare system.

He or she will need one or more of the following:

- Primary care and ancillary services.
- Hospital services – for acute care.
- Dental services.
- Intermediate & Long Term Care (ILTC).
  - o Residential ILTC services – Hospital, Hospice, Nursing Home.
  - o Community-based ILTC Services – Home based, centred based.
- Support services – Lab, pharmacy etc.
- Others – e.g. TCM.

## FINANCING PHILOSOPHY

The financing philosophy of Singapore's healthcare delivery system is based on the 'Many Hands' approach which includes:

- individual responsibility,
- family & community support, and
- Government subsidy.

### Co-payment and subsidy

Patients are expected to co-pay part of their medical expenses and to pay more when they demand a higher level of service. Government subsidies help to keep basic healthcare affordable.

### Financing framework – The 3Ms and others

To help Singaporeans to pay for their medical expenses, the government has put in place a financing framework, which consists of Medisave, MediShield, Medisave-approved Integrated Shield Plans and Medifund.

To these have been added the ElderShield and IDAPE, as well as MOH subsidies for the needy in the PCPS, and acute hospital services, intermediate care services, and long term care services. The quantum of subsidy is determined by means testing.

Together, these frameworks form the 5 layers of support for healthcare financing in Singapore.

- First layer – Heavy government subsidy of up to 80% of the total health bill in acute public hospital wards.
- Second layer – Self funded or family funded financing e.g. savings and Medisave.
- Third layer – Insurance e.g., MediShield, ElderShield.
- Fourth layer – MOH subsidy for the needy – PCPS, Acute, ILTC services – the quantum of subsidy depends on means testing.
- Fifth layer – "Safety net" financing – Medifund.

## SINGAPORE HEALTHCARE FINANCING SCHEMES

The different financing schemes are described in some detail in this section of the paper.

## I. Medisave

- Introduced in April 1984.
- A national healthcare savings scheme which helps individuals put aside part of their income depending on age group.
- From 1 July 2011, the Medisave contribution ceiling has been revised to \$41,000.
- Pays for personal or immediate family's hospitalization, day surgery and certain outpatient expenses, e.g. Chronic Disease Program.

### Raising the Medisave withdrawal limits for outpatient expenses under the new Medisave400

To help Singaporeans better manage chronic diseases like diabetes, high blood pressure, lipid disorder and stroke in the outpatient setting, the Medisave withdrawal limit allowable for such outpatient treatments will be raised from \$300 to \$400 per Medisave account, per year. The scheme will be renamed Medisave400.

Medisave400 can also be tapped on for preventive mammogram screening and selected vaccinations. About 112,000 chronic disease patients will stand to benefit from the scheme.

**Use of Medisave for Outpatient treatment** – subject to withdrawal limits:

- Approved Drugs for HIV/AIDS up to \$550 per month.
- Radiotherapy and Chemotherapy for cancer patients.
- Hyperbaric Oxygen Therapy up to \$100 per treatment.
- Desferrioxamine Drug and Blood Transfusion for Thalassaemia up to \$350 per month.
- Outpatient Intravenous Antibiotic Treatment
- Rental of Devices for Long-Term Oxygen Therapy and Infant Continuous Positive Airway Pressure Therapy up to \$75 per month.
- Renal Dialysis Treatment.
- Immuno-suppressants for patients after Organ Transplant up to \$300 per month.
- Outpatient MRI, CT scans and other diagnostics for cancer patients.
- Chronic Diseases – the following conditions are covered under the CDMP programme.
  1. Diabetes.
  2. Hypertension.
  3. Lipid disorders.
  4. Stroke.
  5. Asthma.
  6. Chronic Obstructive Pulmonary Disease (COPD).
  7. Schizophrenia.
  8. Major depressive disorders.
  9. Bipolar disorders – to be introduced soon.
  10. Dementia – to be introduced soon.
- Day Rehabilitation at approved day rehabilitation centres.

Source: [www.moh.gov.sg/mohcorp/hcfinancing.aspx?id=324](http://www.moh.gov.sg/mohcorp/hcfinancing.aspx?id=324)

### Use of Medisave for Inpatient treatment

Medisave can be used for the following charges:

- Daily ward charges.
- Doctor's fees.
- Surgical operations including the use of operating theatres and
- Inpatient charges for medical treatment, investigations, medicines, rehabilitation services, medical supplies, implants and prostheses introduced during surgery.
- Approved day surgeries.
- Psychiatric treatment, up to \$150 per day for the daily hospital charges including a maximum of \$50 for the doctor's daily attendance fees, subject to a maximum of \$5000 a year.
- Approved community hospitals, up to \$150 per day for the daily hospital charges before 1 June 2010 for \$250 per day for daily hospital charges for admission on or after 1 June 2010.
- Approved convalescent hospitals, up to \$50 a day for the daily hospital charges \$25 per day after 1 June 2010, subject to a maximum of \$1500 a year.

Point to note:

- For a hospitalisation claim, the patient must have stayed in the hospital for at least 8 hours (unless admitted for day surgery), or died within 8 hours of being hospitalised.

### II. MediShield

- An affordable catastrophic medical insurance scheme for Singaporeans and PR to meet the cost of treatment for serious illnesses or prolonged hospitalisation within Singapore.
- MediShield covers hospitalisation expenses and certain approved outpatient treatments. Health screening procedures (for example, screening colonoscopy) are not claimable under MediShield. However, medical treatments that are required in relation to the health screening procedure can be covered under MediShield.
- MediShield is operated by the CPF Board.
- Opt-out basis.
- Covers Newborns since 1 December 2007 and school-going children from June 2008.
- last entry age is 75 years old.
- coverage up to 85 years old.
- Annual premium increases with age.
- Does not cover the treatment of serious pre-existing illness for which the patient has received medical treatment during the 12 months before the start of MediShield coverage. Certain treatments such as those for congenital anomalies, cosmetic surgery, delivery charges, mental illness and personality disorders are also not covered by MediShield.

### III. ElderShield

- Launched in Sep 2002 by MOH as an affordable severe

disability insurance scheme.

- Entry age: 40 (opt-out scheme).
- For Singaporeans and permanent residents.
- Provide basic financial protection and help defray out-of-pocket expenses.
- monthly cash payout for a limited period to help pay out-of-pocket expenses for the care of severely disabled persons.
- Eligibility for claim: unable to perform at least 3 of the 6 Activities of Daily Living (ADL) on your own. These activities are: Washing (Bath/Shower), Dressing, Feeding, Toileting, Mobility & Transferring.
- Three ElderShield insurers: Aviva Ltd, Great Eastern Life Assurance Co Ltd and NTUC Income Insurance Cooperative Ltd.
- From September 2007, all Singaporeans and Permanent Residents who turn 40 will be automatically covered under the new ElderShield plan.
- This improved severe disability insurance scheme will pay out \$400 a month for up to 6 years or maximum potential payout of \$28,800 - compared to the current payout of \$300 a month for up to 5 years or maximum potential payout of \$18,000. This is equivalent to a 60% or \$10,800 increase in benefits.

### IV. IDAPE (Interim Disability Assistance Programme for the Elderly (MOH,\*))

- IDAPE is a government assistance scheme to provide financial help to needy and disabled elderly Singaporeans who are not eligible for ElderShield because of their age or pre-existing disabilities.
- Administered by NTUC Income.
- If eligible, IDAPE will provide \$100 or \$150 a month for a maximum period of 60 months.
- Claim requirement is the same as ElderShield.
- However, if you are aged 40 to 69 years as of 30 September 2002, your disability must occur before 30 September 2002.
- Monthly household per capita income is less than \$1000.

### IDAPE Claims

The claimable amounts are shown in Table 1.

**Table 1. IDAPE CLAIMS**

Household Per Capita income per month	Claim Amount per month for a maximum period of 60 months
\$700 and below	\$150
\$701 - \$1000	\$100
Above \$1000	Not eligible for IDAPE

### V. MOH subsidy - Means Testing

- For government funded institutions and services which provides step-down care services such as:
  - o community hospitals.

- o nursing homes.
- o hospices.
- o day rehabilitation centres.
- o home care services (home nursing & home medical).
- Amount of subsidy is determined by Means Testing.

### What is Means Testing?

A way to focus limited resources for needy Singaporeans, by channeling it to those who need it most.

- implemented at the government-funded nursing homes since 2000.
- implemented at the other intermediate and long term care facilities since 2001.
- Lower-income patients receive more subsidies than the higher-income patients at these facilities.

### Means testing for inpatient care at Restructured Hospitals

Rationale for Change:

- Patients who previously selected Class A or B1 may choose Class B2 or C wards.
- May crowd out the lower-income patients, who cannot afford higher class wards and have no choice but to seek treatment in subsidized wards.
- Means testing will help ensure that the lower-income still have access to subsidized wards and are not crowded out by those who could afford private care.

Implementation:

- Patients still retain their freedom to choose their ward class.
- They will still be heavily subsidized for B2 and C wards, but at different rates.
- Higher-income patients will be subsidized less than lower-income patients, but their bills will remain affordable.
- A higher salaried patient in Class B2 will still receive higher subsidy in B2, than if he opts for Class B1.

### How is subsidy determined?

For those who are working:

- Subsidy will be based on their income level. The hospitals' system will extract the income information from the CPF Board's system and automatically calculate the subsidy level for each patient.
- For patients who are salaried employees, their income will be based on the average monthly income received over the last available 12-month period, including bonuses. It will not be based on just the last month's salary.
- Voluntary contributions to CPF will not affect the income information obtained from CPF Board.

For those who are self-employed: their income will be based on either:

- (a) the monthly income derived from the last available net trade income assessed by the Inland Revenue Authority of Singapore within the last 2 assessment years; or
- (b) the income declared to the CPF Board or the income assumed under the CPF laws within the last 2 years.

- Means Test is valid for 12 months.
- Consent from patient needed to retrieve income information from CPF Board.
- If no consent by patient taken, patient's hospital bill will be based on 65% subsidy for Class C (or 50% subsidy for Class B2).
- For patients who are unconscious or unable to give consent at admission:
  - o The hospital staff will follow up with patients to obtain consent.
  - o In the meantime, patient will be billed based on the lowest subsidy for the ward class chosen. His hospitalisation bill will be finalised based on the information from CPF Board after consent has been obtained from patient.

### Special circumstances and appeals

1. Patients who have been retrenched will be able to receive the maximum subsidy. They will need to show proof that they have been retrenched by their employer.

If they suffer a loss of income since their last admission, they can inform the hospital staff to retrieve their latest available income information from CPF Board. They will need to provide consent for the hospital staff to do so. Their subsidy level will be based on the latest information retrieved.

2. Patients who do not have an income will receive full subsidy (65% for Class B and 80% for Class C) unless they live in a property with AV exceeding \$11,000. The latter will receive subsidy at 50% (at Class B2) at 65% (at Class C). The assessment will be based on the address as registered on their NRIC.

3. Children under the age of 21 will be assessed based on the AV of their residence. For those who have not obtained their NRIC, it will be based on the residence as stated in their Birth Certificate or NRIC of the parent.

4. Appeal

- for Reassessment.
- see MSW for additional assistance, e.g. Medifund.

### Government Subsidy for Intermediate & Long-term Care (ILTC) Services

Criteria

- Singaporean (Pink IC) & PRs (Blue IC).
- Per capita gross income of \$0 to \$1400.
- Holder of PA and MFEC to be subsidised at 75%.
- Patients and/or spouse with private properties with annual values of \$11,000 or below to be eligible for subsidies if they pass the income criterion.

**Table 2. Subsidy Framework from 1st July 2011 - Residential Services**

Monthly Per Capita Income Cut-off	Subsidy for Singapore Citizens	Subsidy for PR From 1 July 2011	Subsidy for PR From 1 Jan 2012
≤ \$360	75%	60%	55%
\$361 - \$550	70%	55%	50%
\$551 - \$750	60%	45%	40%
\$751 - \$950	50%	35%	30%
\$951 - \$1,150	40%	25%	20%
\$1,151 - \$1,300	30%	15%	15%
\$1,301 - \$1,350	20%	10%	10%
\$1,351 - \$1,400	10%	0%	0%
> \$1,400	0%	0%	0%

**Table 3. Subsidy Framework from 1st July 2011 - Community-based services**

Monthly Per Capita Income Cut-off	Subsidy for Singapore Citizens	Subsidy for PR From 1 July 2011	Subsidy for PR From 1 Jan 2012
\$0 - \$360	75%	60%	55%
\$361 - \$950	50%	35%	30%
\$951 - \$1400 (no change)	25%	12.5%	12.5%
>\$1,400	0%	0%	0%

Community-based services consist of:

- Day Rehabilitation Centres.
- Dementia Day Care Centres.
- Ex Mentally Ill Day Rehabilitation.
- Hospice Home Medical.
- Hospice Home Nursing.
- Home Medical.
- Home Nursing.

### VI. Primary Care Partnership Scheme (PCPS)

To provide convenient and affordable healthcare for needy elderly and disabled Singaporeans, the Ministry of Health (MOH) started the Primary Care Partnership Scheme (PCPS) so that such needy patients can receive subsidised treatment at General Practitioners (GPs) and dental clinics near their homes.

Clinics registered under PCPS have partnered with MOH to provide common outpatient medical treatments and basic dental services for this group of patients. The scheme will

also cover treatment for 8 chronic diseases: Diabetes Mellitus (DM), Hypertension (High blood pressure), Lipid Disorders (e.g. High cholesterol), stroke, asthma, COPD, schizophrenia and major depression.

### Expansion of the Primary Care Partnership Scheme for private GP and dental care

The following changes will be implemented from early 2012. See Table 4. Existing PCPS members can continue to benefit from the scheme until their card expires. Those who qualify under the current PCPS criteria and wish to apply for the scheme now can do so. Application forms are available at the CDCs and Community Centres.

The qualifying income for the Primary Care Partnership Scheme (PCPS) will be raised from the current \$800 to \$1,500 per capita monthly household income. At the same time, the age criteria for eligibility will be lowered from the current 65 years old to 40 years old.

There will be two benefit tiers under the expanded scheme.

With this change, 710,000 Singaporeans can receive subsidised care at participating PCPS GP clinics to better manage their chronic conditions. Successful PCPS applicants will receive a healthcare benefits card to identify them as PCPS members to the participating clinics.

There are currently more than 31,000 PCPS members, and 405 participating GP clinics and 170 participating dental clinics.

**Table 4. New PCPS Tiers**

PCPS Tiers	Subsidy received		Dental
	Acute	Chronic conditions under the CDMP	
A. Income equal or less than \$ 900 Economically inactive households with AV less than or equal to \$13000		\$80 (previously \$60) increase in annual cap)	Up to \$256.50
B. \$901 to \$1500		\$50	Up to \$170.50 For selected dental procedures

### Eligibility for PCPS

To qualify for PCPS, you must be either:

- A Singapore citizen who is 65 years old or above, with a per capita monthly household income of \$800 or below; or
- A Singapore citizen who is disabled i.e. unable to perform at least one of the 6 activities of daily living (ADLs) such as washing/bathing; feeding; toileting; transferring; dressing; and mobility and with a per capita monthly household income of \$800 and below and; or
- On the Public Assistance (PA) Scheme.

How to apply for PCPS?

- Apply at any Community Centre/Club or Community Development Council (CDC) under People’s Association (PA).
- Application form to be submitted with the following supporting documents:-
  - o Applicant’s NRIC.
  - o Copies of applicant’s family members’ NRIC.
  - o Proof of applicant and family members’ income, such as latest pay slip, IRAS or CPF statements, or letters from employers.
  - o Documentary proof of other sources of income such as rental payment from tenants etc., if any.

**VII. Other Financial Schemes available - Senior Mobility Fund**

The Senior’s Mobility Fund was launched to assist the elderly in getting basic mobility devices to achieve independence in the community. With the funding, the elderly can move around easier, perform necessary tasks like visiting the day rehabilitation centre or venture out of their house and socialise.

Who can apply for the Senior’s Mobility Fund (SMF)?

The applicant needs to fulfill all the eligibility criteria below:

- Singaporean Citizens (SC) aged 60 and above.
- Be means tested (those in the lower 30% income group i.e. <=\$30,000).
- Undergo assessment to determine the need and type of mobility device (to be done by a qualified therapist).

What are the types of mobility devices covered under the Senior’s Mobility Fund?

*Low Need Devices*

- Foldable and adjustable Walking frame.
- Foldable and adjustable Walking frame with front wheels.
- Aluminum Walking frame (fixed).
- Reciprocal Walking frame.
- Wide-base Quad stick.
- Narrow-base Quad stick.
- Adjustable Walking stick.

*High Need Devices*

- Standard wheelchair (fixed armrest and footrest, heavy duty).
- Standard detachable wheelchair (detachable armrest and footrest, heavy duty).
- Wheelchair with elevating footplates (detachable armrest and footrest, height adjustable, heavy duty).
- Standard light-weight wheelchair (fixed armrest and footrest, light-weight).
- Standard detachable light-weight wheelchair (detachable armrest and footrest, light-weight).

What is the funding amount?

**Table 5. Funding cap for low need devices and high need devices**

Types of Devices	Funding Cap
Low Need Devices: Walking frame, quad-stick, walking stick	90% of actual cost or \$135, whichever is lower
High Need Devices: Wheelchair	90% of actual cost or \$180, whichever is lower

For enquiry: Please call AIC at 6603 6800 or email smf.mobility@aic.sg

**VIII. Medifund**

- An endowment fund to help needy Singaporeans who are unable to afford the heavily subsidized charges despite Medisave and Medishield.
- Established in 1993 with an initial capital of S\$200 million.
- Interest is used to finance the needy.
- Last resort, not an entitlement.
- The individual will have to apply for help, and the quantum of aid he receives will depend on his circumstances.

Eligibility criteria for Medifund

- Singapore citizens (pink IC).
- For subsidised (B2 and C) medical treatment in approved facilities and medical institutions.
- Medishield of patient, and Medisave of patient and immediate family members to be utilised first where applicable.
- PRs and non-Singaporean PA (recipients of Silver Jubilee Fund) are not eligible.
- Pt without identification papers or with old papers issued by the State of Singapore and are on the hospitals’ permanent waiver list are to be treated as Singaporeans for purpose of the Medifund scheme.
- Burnt-out cases from Woodbridge with no documentary evidence of nationality can apply and be accorded automatic full Medifund assistance.
- Amount of assistance is based on
  - financial circumstances.
  - bill size.
- Assessment conducted by Medical Social Workers.

No need to insist on depleting Medisave first

- Although Medifund is intended to be a help of last resort and applicants should first use up his Medisave and the Medisave of his immediate family members (defined as spouse, children, and parents of dependant children) before the remaining liability could be considered for full or partial help from Medifund, there is no need to insist that
  - o The children first use up their Medisave.
  - o If the children themselves are elderly with their own family to support, or
  - o If children themselves are afflicted with illness which require prolonged treatment, e.g. renal dialysis.
  - o The patients first use up their Medisave.
  - o If the patients themselves are aged.

## CONCLUSIONS

Appropriate integration of care, especially in those who have complex medical and social needs will be one way of making the best use of available resources and funds. To help Singaporeans to pay for their medical expenses, the government has put in place a financing framework, which consists of Medisave, MediShield, Medisave-approved Integrated Shield Plans and Medifund. To these have been added the Eldershield and IDAPE, as well as MOH subsidies for the needy in the PCPS,

acute hospital services, intermediate care services, and long term care services.

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Useful websites on healthcare financing in Singapore

- [www.moh.gov.sg](http://www.moh.gov.sg)
- [www.cpf.gov.sg](http://www.cpf.gov.sg)
- [www.aic.sg](http://www.aic.sg)

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## LEARNING POINTS

- **The financing philosophy of Singapore's healthcare delivery system is based on: individual responsibility, and community support.**
  - **To help Singaporeans to pay for their medical expenses, the government has put in place a financing framework, which consists of Medisave, MediShield, Medisave-approved Integrated Shield Plans and Medifund.**
  - **To these have been added the Eldershield and IDAPE, as well as MOH subsidies for the needy in the PCPS, acute hospital services, intermediate care services, and long term care services.**
  - **Together, these frameworks form the 5 layers of support for healthcare financing in Singapore.**
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**DISCHARGE PLANNING IN INTEGRATED CARE**

Dr Rukshini Puvanendran

**ABSTRACT**

**The discharge of the patient from the hospital to the community or step down care facilities is a critical point in patient care. The discharge process is especially critical for elderly patients and patients with multiple co-morbidities and impaired function. Inappropriate discharge destination and incomplete communication with patients and ambulatory care can lead to adverse outcomes like unscheduled readmissions, emergency department visits and adverse events. Know the goals of discharge planning: reduce unnecessary hospital length of stay, prevent adverse outcomes after discharge, and co-ordinate services between hospital and community, bridging the gap between hospital and discharge destination. Discharge planning process should start at admission. Screen for the higher risk patient and intervene specifically to reduce the risks. Go through the elements of discharge planning: determine the post discharge site of care, do medication reconciliation, educate patient, create a useful discharge summary. Be clear of the doctor's role in discharge planning.**

**Keywords:**

**Discharge planning; High Risk patient; Post discharge site of care; Medication reconciliation; Patient education; Discharge summary**

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**INTRODUCTION**

Discharging a patient from hospital to the community is a complex process. This process is getting more challenging. Factors contributing to this are:

- Our aging population: As our population ages, the patients are sicker and more complex in their needs.
- The rising number of medications per patient with chronic medical conditions.
- Increase emphasis on reducing length of stay and case mix and diagnosis related grouping (DRG) DRGs are clinically meaningful patient conditions which require similar levels of hospital resources for their management. DRG based payment system is used in hospitals to calculate government subsidises(1). This has also been the payment structure in the USA for several years and patients have been discharged 'quicker and sicker' <sup>2</sup>

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- Team based management with hand offs and night float on call system<sup>3</sup>. As such, the admitting doctor or the doctor most familiar with the patient may not be the discharging doctor.

The discharge process is an attempt to reconcile the somewhat opposing aims of reduction in hospital stay and prevention of adverse events and unscheduled re-admission. Organised discharge planning and transition of care is more important to patient care and safety.

**GOALS OF DISCHARGE PLANNING**

The goals of discharge planning are:

- To reduce unnecessary hospital length of stay.
- To prevent adverse outcomes after discharge.
- To coordinate services between hospital and community, bridging the gap between hospital and discharge destination.

The consequences of poor discharge are unscheduled readmissions, recurrent emergency visits and adverse events, including death.

During hospitalisation, the medical team should optimise the underlying medical condition, considering the patient's therapy goals, function, cognition, life expectancy and co morbid conditions. The team should also reconcile medications and reduce or discontinue medications that may be unnecessary.

Additionally be alert to possible neglect and care giver stress, especially when managing patients with physical and cognitive impairments.

Communication with the patient and their family members or care givers is essential for the patient to have better understanding of their medical conditions. Patients with poor prognosis and palliative care patients should have end of life discussions. Family care conferences chaired by senior doctors attended by a multidisciplinary team involved in the care of the patient are a good platform to have end of life discussions.

**DISCHARGE PLANNING PROCESS SHOULD START AT ADMISSION**

Patients may end up staying in the acute care hospital even after their acute illness is stabilised due to lack of suitable alternative setting for care or other social factors. This can lead to prolonged hospitalisation that not only drives up health care costs and bed occupancy, it also predisposes patients to hospital acquired infections, de-conditioning and complications of immobility. The discharge process should start at admission

and the patient's discharge destination identified early so as to prevent unnecessarily prolonged hospital stay.<sup>4</sup>

Check lists and standardisation of the discharge process have been proposed to aid in a safe patient transition to an outpatient setting. These checklists are widely utilised.<sup>5</sup>

Due to the complexity of the problems the medical team should also include a multidisciplinary team consisting of doctors, nurses, therapists, medical social workers in the discharge process. In an ideal world, the patient's family physician should be orchestrating the discharge process.

## THE HIGHER RISK PATIENT

All patients admitted should be appropriately discharged back to the community. But there is a difference between the discharge of a 24-year-old working adult admitted for an appendectomy and the discharge of a 79-year-old gentleman with previous history of atrial fibrillation and stroke, requiring nasogastric feeding, who was admitted for a urinary tract infection, being discharged back to a home environment with no care giver.

Several tools have been utilised to identify higher risk patients<sup>6,7</sup>. Generally elderly patients and patients with multiple co morbidity are at increased risk of readmission. The Society of Hospital Medicine has identified patients with the 8 characteristics that make them at higher risk for unscheduled readmission and poorer outcome after discharge, colloquially called the 8Ps. These identified patients would warrant additional resources, like case managers, for more organised discharge planning<sup>8,9</sup>.

Higher Risk patients have one of more of the 8Ps:

1. Problem medications.  
Patients receiving medications like anticoagulants (warfarin), insulin, aspirin and clopidogrel dual therapy, digoxin and narcotics have a higher risk of readmission and adverse outcomes.
2. Psychological issues  
Patients who are depressed are at higher risk of non compliance and poorer outcomes.
3. Principal diagnoses that have poorer outcomes  
Repeatedly it has been shown that patients with cancer, stroke, diabetes, heart failure<sup>10</sup> and COPD<sup>11</sup> have a poorer outcome on discharge.
4. Polypharmacy  
When a patient takes multiple medications, he is at increased risk drug related adverse effects and non compliance to therapy. The figure of >5 medications is accepted.
5. Poor Health Literacy<sup>12</sup>.
6. Poor social support.
7. Prior non elective admission.
8. Palliative Care  
If a patient suffers from a condition where his or her life expectancy is within a year like cancer or end stage organ

failure where the patient is not a candidate for replacement therapy or transplant he has higher risk of adverse events on discharge.

Table 1 lists specific interventions that will benefit these higher risk patients.

**Table 1: Specific Interventions for Higher Risk Patients**

8 P Screening Tool	Specific Interventions
Problem Medication: Warfarin, Insulin, Aspirin and Clopidogrel dual therapy, Digoxin, Narcotic agents.	Medication specific education using Teach Back. Plan for monitoring and communicate this for patient and care givers. Specific interventions for managing medication. side effects reviewed with patient and care giver. Follow up phone call to assess adherence within 72 hours.
Psychological Depression	Assess the need for psychiatric care in the ambulatory setting. Communicate with providers in the ambulatory setting to highlight any new issues that may have arisen during admission. Link the patient with community supports like Family Care Centres and Counsellors.
Polypharmacy: More than 5 medications	Reconcile medications and eliminate unnecessary medications. Simplify medication regimes to improve adherence. Follow up phone calls to assess and reinforce adherence within 72 hours.
Poor patient support (Lack of care givers)	Follow up phone calls to assess adherence and complications within 72 hours. Follow up appointment with Primary Care within 7 days. Involve home care providers like case managers and social assistance. Provide and communicate a clear plan to these community providers.
Prior unscheduled/non elective admission within 6 months	Review reason for readmission- was it related and preventable. Follow up phone call to assess adherence and complications within 72 hours. Follow up appointment with primary care or hospital outpatient within 7 days.
Palliative Care: Would you be surprised if this patient dies within 1 year? Does this patient have a progressive serious illness like cancer or end stage organ failure.	Assess the need for palliative services. Identify goals of care and therapeutic options. Communicate the prognosis to patient/family members/care givers. Address and manage bothersome symptoms like pain and constipation. Discuss with family services like palliative care services, home medical services and benefits of these services. Communicate and involve Primary Care Physicians.

*Adapted from [www.hospitalmedicine.org/BOOST](http://www.hospitalmedicine.org/BOOST)*

*Note: Community management and telephone communication is usually done by Hospital Based Case Managers.*

## ELEMENTS OF DISCHARGE PLANNING

### Determining the Post Discharge Site of Care

Not all patients will be able to go back to their homes on discharge. The patient has to be assessed holistically taking into account the medical, functional and social condition before the patient can be safely discharged to his or her home<sup>13</sup>. Alternatively, patients may be discharged to rehabilitation

wards in community hospitals if they have acute functional decline with good rehabilitation potential and will benefit from inpatient rehabilitation. A patient with impaired functional ability and no care giver may have to be discharged to an institutional care like a Nursing Home or Chronic Sick Hospital. The elements of holistic assessment include:

- acute and chronic medical condition.
- his functional ability and rehabilitation potential.
- availability of family support and care giver if he or she requires one.
- nature of his or her home environment.
- cognition and decision making capacity.
- accessibility of community and health care services.

Input from a multidisciplinary team maybe necessary to assess patients with complex needs.

If the patient is inappropriately discharged to an unsafe environment, he risks an adverse outcome like a fall or 'non compliance' to therapy due to inability to care for himself. The managing doctor should be aware of placement options available to patients and advocate for the patient and family to make informed decisions regarding appropriate post discharge destination.<sup>14</sup>

### Medication reconciliation

The 1999 Institution of Medicine (IOM), in its publication *To Err Is Human: Building a Safer Health System* reported 98,000 deaths annually in US hospitals due to Adverse Drug Reactions.<sup>15</sup> The Institute of Health Care Improvement (IHI) in its 5 million lives campaign listed 6 health care related changes that can save lives. Prevention of Adverse Drug Reactions by Medication Reconciliation was listed alongside deployment of rapid response teams at first sign of patient decline, delivery of reliable, evidence based therapy for acute myocardial infarction, prevention of central line infections, prevention of surgical site infections and prevention of ventilator associated pneumonia.

Medication reconciliation is defined by the Institute of Health Care Improvement (IHI) as the process of identifying the most accurate list of medications a patient is taking - including the name, dosage frequency and route - and using this list to provide correct medications for patients anywhere in the health care system<sup>16,17</sup>. The Joint Commission International (JCI) for healthcare standards and accreditation mandates comparing the patient's current list of medications against physicians admissions, discharge and transfer orders. This is to prevent medication errors of omission, duplication, dosing errors and drug interaction. Medication reconciliation should be done at every transition of care. Transition of care includes change in setting, service, practitioner and level of care and includes admission, discharge, step down care and care in the ambulatory setting<sup>18</sup>.

The process of medication reconciliation comprises 5 steps:

1. Develop a list of current medications.
2. Develop a list of medications to be prescribed.
3. Compare the medications on the 2 lists.
4. Make clinical decisions regarding appropriateness based on the 2 lists.
5. Communicate the new list to appropriate caregivers and the patient.

Although this may seem instinctive, medication reconciliation is surprisingly often omitted, in both the inpatient and outpatient setting. Further, this can be quite challenging for patients with multiple co morbidities, managed by several specialists in different institutions.

### Patient education and instructions

During admission, the patient should be instructed on his or her medical condition and what to expect on discharge and how to manage their condition after discharge. Studies have shown that in addition to verbal instruction, written information provided in simple language, appropriate to the patient's level of health literacy has better outcome. This is because patients recall less than 50% of what is taught<sup>19</sup>. Interactive communication, like the 'teach back' technique, where the health care provider asks the patient or care giver to explain the recently taught information in their own words<sup>20</sup> has been shown to have better educational value. This also enables the Health Care provider to identify and correct misconceptions. This is especially useful when dealing with high risk medications like insulin and warfarin and teaching skills like nasogastric feeding and dressing changes.

### Discharge summary

The discharge summary and letter is the default communication between the team managing the patient during the acute hospitalisation and the other health care providers including the primary care physician. Communication between physicians is essential and poor communication can result in loss of information, confusion over responsibility and potential poor patient satisfaction and adverse outcomes.

Physician communication in Singapore is usually through letters and electronic medical records, although this may also be through telephone, fax and face to face contact. Studies in America have shown that discharge summaries are the preferred mode of communication between physicians<sup>21</sup>. Electronic medical records and electronic discharge summaries significantly improved quality and timeliness of discharge summaries<sup>22,23</sup>.

The discharge summary should include:

- The reason for hospitalisation.
- The significant findings from history, physical examination and laboratory and radiological tests, including pathology.

- List of procedures performed and the outcomes.
- Discharge diagnosis and outcome of hospitalisation.
- Patient's condition on discharge.
- Discharge medication list and indications for any recently altered medications.
- Follow up care, including appointments, how care needs will be met and additional services, e.g. home nursing foundation, meals on wheels.
- Pending test results and the physician responsible for tracing the results.

The absence of communication of indications for newly altered medication and lack of information in the discharge summary regarding test results that are pending and have to be traced leads to poor outcomes. A common example is the starting of proton pump inhibitors (PPI) in hospital. If the indication is not stated, i.e. is it for stress ulcer prophylaxis or for peptic ulcer disease and length of expected treatment specified, patients may continue taking PPI unnecessarily. Another example would be the change of drugs within the same class during admission. The information regarding if there was a clinical indication for this change, or if this substitution was due to the hospital formulary preference must be communicated. If the substitution was due to hospital formulary preference, the patient may wish to revert back to his original medication.

Lack of information on test results that are pending with no delegation of responsibility as to who traces the results, can lead to poor outcomes<sup>24</sup>. A common example is sputum cultures for tuberculosis (they take 6 weeks to be available) that are pending at the time patients are discharged. A positive culture result could be missed if the patient defaults his or her follow up appointment. Electronic notification has been explored. However, physicians reported barriers like being inundated with clinically irrelevant results, not having sufficient time and lack of integration of post discharge test result management into usual workflow. Majority of physicians wanted to be notified and agreed that ideally designed computerised application would be valuable for managing pending tests at discharge<sup>25</sup>.

Situations of particular high risk include:

- Patients who missed follow up appointments
- Insufficiently flagged amendments to test reports-test reports are changed after discharged e.g. radiology report amended after discussion with senior doctor.
- Medications changed during admission and information is not transmitted to physician in the ambulatory care.

With electronic medical records in hospitals, some of these issues have been addressed. However, universal access of electronic medical records by all doctors in Singapore is still a work in progress and issues of cost and end user adoption are still being grappled with.

### THE DOCTOR'S ROLE IN DISCHARGE PLANNING

The attending doctor's role in discharge planning consists of several actions:

- Optimise care of underlying medical conditions: considering patient treatment goals, function, cognition, life expectancy, and co-morbid conditions.
- Do medication reconciliation: Reduce or discontinue any unnecessary medication.
- Communicate with the patient and family regarding prognosis and make full use of family conferences to discuss end of life issues.
- Communicate with primary care and step-down care.
- Advocate for patients and families getting an opportunity for informed decisions on placement options.
- Be alert for signs of neglect and abuse.
- Be alert for care giver stress.

### CONCLUSIONS

The discharge of the patient from the hospital to the community or step down care facilities is a critical point in patient care. The discharge process is especially critical for elderly patients and patients with multiple co-morbidities and impaired function. Inappropriate discharge destination and incomplete communication with patients and ambulatory care can lead to adverse outcomes like unscheduled readmissions, emergency department visits and adverse events.

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### LEARNING POINTS

- **Know the goals of discharge planning.**
  - **Note that discharge planning process should start at admission.**
  - **Screen for the higher risk patient and intervene specifically to reduce the risks.**
  - **Go through the elements of discharge planning in the care of each patient.**
  - **Be clear of the doctor's role in discharge planning.**
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## UNIT NO. 5

## A FAMILY PHYSICIAN'S PERSPECTIVE ON PRESCRIBING AMBULATORY AIDS FOR THE ELDERLY

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### ABSTRACT

**Ambulatory aids extend the mobility of patients who have gait disorders. Knowing the functions of a cane, walker, and crutches helps in appropriate prescription of these devices. There are 8 suggested steps to go through when prescribing ambulatory aids: (1) Conduct a thorough review of patient's medical conditions to determine if the elderly patient is safe for ambulation (2) Evaluate the patient's ambulatory expectations and ambulatory requirements (3) Screen if the patient will benefit from using unilateral or bilateral support ambulatory aid. (4) Choose the most appropriate ambulatory aid based on the patient's conditions, expectations, and the need to use upper extremities for balance or weight bearing while ambulating (5) Ensure proper fitting of the ambulatory aid (6) Provide education or training to use the ambulatory aid effectively (7) Determine if the patient requires physical assistance in addition to the ambulatory aid (8) Review the use of ambulatory aid regularly and check ambulatory aids periodically for wear and tear.**

**Keywords:** Ambulatory aid, walking device, elderly, family physician, gait disorders

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### INTRODUCTION

#### (1) What is an ambulatory aid?

An ambulatory aid is a piece of equipment or appliance that aids ambulation by providing an extension to the upper limb or limbs, and this helps to transmit body weight and provide support for the person when he/she walks. Properly used, ambulatory aids extend the mobility and balance of individuals with gait disorders that cannot be medically corrected.

#### (2) Increasing need for ambulatory aids

With the increase in number of people who are elderly in Singapore, the number of such people who can be helped with ambulatory aids will be substantial. With a continuing decline in fertility and the improvement in health care, Singapore faces a "silver tsunami" in the near future. Senior citizens aged 65 years and older are projected to increase to 900,000 in 2030<sup>1,2,3,4</sup>. By then, one in every 5 residents will be a senior. As

the proportion of senior citizens keeps growing, it is expected that the number of vulnerable elderly with chronic health problems and functional limitations, especially in ambulation, will increase. In Singapore, the proportion of senior citizens who were fully ambulant and physically independent decreased from 95.9% in 1995 to 92.2% in 2005.<sup>3</sup>

The prevalence of ambulatory aid usage is highest amongst the oldest age groups, with the risk of limited walking capacity increasing with advancing age. (See Table 1). Family physicians can expect to see more elderly patients using various assistive ambulatory aids coming to their clinics.

**TABLE 1 – MOBILITY STATUS OF SINGAPORE SENIOR CITIZENS (2005)<sup>3</sup>**

Mobility Status	Age Group (%)		
	55-64 years	65-74 years	≥ 75 years
Ambulant and physically independent	96.8	92.9	77.7
Ambulant and physically independent but require ambulatory aid	2.8	4.8	12.9
Require some physical assistance to move around and need some assistive device	0.3	1.3	6.2
Not bedridden but require total physical assistance for movement	0.1	0.4	1.2
Bedridden and require regular turning in bed	0.0	0.5	2.9

#### (3) Safe use of ambulatory aids

Many patients and/or their family members receive little or no professional assistance when selecting an ambulatory aid. Inappropriate selection of such a device can result in a poor gait pattern, which increases energy expenditure and the risk of falls. Family physicians are therefore well placed to assess and advise this group of patients in choosing the correct ambulatory aid.

### FUNCTIONS OF AMBULATORY AIDS

Ambulatory aids function to:

- Increase area of support for ambulation and so decrease the risk of falls.
- Increase patient's stability.
- Redistribute and off-load the weight on a painful leg and thereby relieve pain.
- Improve balance in a patient with unsteady gait.
- Provide sensory feedback for ambulation.

Elderly patients, who require ambulatory aids, use them for the maintenance of physical mobility and for falls prevention.

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The maintenance of physical mobility status is essential to the health and well being in an elderly. Without ambulatory aids, mobility impairment can predispose the elderly to falls and their associated complications such as fractures and intracranial haemorrhage. Even in the absence of serious physical injury, falls have psychological consequences such as the fear of further falls, loss of confidence and loss of self-worth. All these together accelerate functional decline leading to further loss of physical independence and decreased quality of life. The case for appropriate ambulatory aids is therefore strong.

**WHEN DO ELDERLY PATIENTS NEED AMBULATORY AIDS?**

The need for ambulatory aids arises when elderly patients' abilities to maintain their balance during ambulation is impaired by gait disorders that are medically untreatable. Many factors are involved in determining one's ability to maintain balance during ambulation and these are ultimately important in determining if the elderly will benefit from using an ambulatory aid.

Factors affecting ambulation can be broadly classified into the following 4 categories. Impairments in any of these categories can potentially render a patient unsafe to ambulate independently.

**(1) Balance / Coordination disorders**

These include cerebellar ataxia, peripheral sensory disorders, and visual impairment. Patients with cerebellar ataxia tend to present with broad based gait with increase trunk sway and irregular stepping. Patients with peripheral sensory gait disorders tend to present with unsteady and uncoordinated gait. Visual impairment can arise from cataracts, retinopathy, or due to secondary to the decreased ability in depth perception, differentiation in colour contrast or the longer time required for accommodation when entering from a bright environment to a dimly lit room in the ageing eye. These result in loss of balance during ambulation.

**(2) Motor dysfunctions**

Motor dysfunctions that affect ambulation include parkinsonism, post-stroke spasticity, and foot-drop.

**(3) Musculoskeletal dysfunctions**

Musculoskeletal dysfunctions that affect ambulation include arthritis and myopathy. Patients in this category complain of lower limb joint pain, or decreased strength. They often present with an antalgic gait if there is pain, or a waddling gait if there is decreased strength.

**(4) Cognition & psychiatric disorders**

Conditions in this category include dementia, history of psychiatric disorders and post-stroke cognitive impairment. In most patients with severe cognition and psychiatric disorders

affecting mobility, their conditions cannot be cured or reversed and they may not benefit from using ambulatory aids.<sup>6,7</sup>

**WHAT ARE THE COMMON AMBULATORY AIDS LOCALLY AVAILABLE FOR ELDERLY PATIENTS?**

The most basic forms of ambulatory aids can be categorised into 3 groups: canes (walking sticks), walkers (walking frames), and crutches. These ambulatory aids can be further modified or fitted with accessories to cater to the specific needs of the elderly.

**Canes (Walking sticks)**

Canes, commonly known as walking sticks locally, widen the patient's base of support thereby increasing one's balance for ambulation.<sup>8,9</sup> Only one upper extremity is required to use this aid. The elderly is able to engage in stairs climbing activities with this cane.

The commonest materials used for these canes are wood or aluminium. A cane is basically made up of 3 parts: handle, shaft and base. Each of these individual parts may be modified to enhance stability to suit the elderly needs. Figure 1 shows variations to the standard cane available locally.

**FIGURE 1. TYPES OF CANES AND FEATURES**

Types of canes	Features relevant to their use
 <p>Standard cane</p>	<ul style="list-style-type: none"> <li>Commonly made of wood.</li> <li>Good hand function is required to grip the handle properly.</li> <li>Height of cane is not adjustable to suit the patient's height. Therefore, the cane must be custom fitted for length.</li> <li>Increases balance and support for patient but does not allow patient to bear considerable weight on it.</li> </ul>
 <p>Functional grip cane</p>	<ul style="list-style-type: none"> <li>Commonly made of aluminium and is lighter than standard wooden cane.</li> <li>Good hand function is required to grip the handle properly.</li> <li>Handle fits more comfortably with hand grip than standard cane "C" handle</li> <li>Height of cane is adjustable to suit the patient's height</li> </ul>
 <p>Offset Cane</p>	<ul style="list-style-type: none"> <li>Features are similar to the functional grip cane.</li> <li>The design allows added ability to displace some of patient's weight onto the shaft of the cane.</li> <li>Useful in patients with painful lower limb joints.</li> </ul>
 <p>"Quad" cane or Quad stick</p>	<ul style="list-style-type: none"> <li>Features are similar to the functional grip cane</li> <li>The multiple-legged base of quad cane confers more stability than the single point cane.</li> <li>Broadening the base of the quad cane will increase stability for the patient.</li> <li>It allows greater displacement of patient's weight onto the shaft of the cane than the offset cane.</li> </ul>

**Walkers (Walking frames)**

Walkers, commonly known as walking frames locally, provide a wider and more stable base of support than do canes or crutches.<sup>8</sup> They may be prescribed for elderly patients requiring

more assistance with balance, those with a fear of falling, and the uncoordinated.<sup>8</sup> It is also best suited for those undergoing early gait training for rehabilitation.

Good grasp and bilateral arm strength are pre-requisites for the proper usage of walkers, although forearm support modifications can be used instead. Walkers are conspicuous in appearance and they also interfere with the development of smooth gait patterns. As such, elderly patients often limit the use of walkers to the home. Walkers cannot be safely used to engage in stair climbing activities.

Walkers are available in various sizes, are adjustable in height, and come in different designs. The following shows some variants of the walkers commonly available locally.

**FIGURE 2. TYPES OF WALKERS (WALKING FRAMES) AND FEATURES**

Types of walkers (Walking frames)	Features relevant to their use
 <p>Standard walkers</p>	<ul style="list-style-type: none"> <li>• Four legs, no wheels.</li> <li>• Usually made of lightweight aluminium to reduce weight-carrying burden for user.</li> <li>• Height of walker is adjustable to suit the patient's height</li> <li>• Allows good support as well as displacement of patient's weight entirely onto the walker</li> <li>• Impacts negatively on walking efficiency – Gait is not fluid; it starts and stops</li> <li>• Frame can be folded for easy storage in a car boot</li> </ul>
 <p>2 wheel walker</p>	<ul style="list-style-type: none"> <li>• Four legs, two front wheels.</li> <li>• Also called the wheeled frame or rollator.</li> <li>• Larger wheels are better for uneven terrain.</li> <li>• Ambulatory aid of choice if balance (as opposed to reduced weight-bearing ability) is the main problem.</li> <li>• Frames can be folded for easy storage in a car boot</li> <li>• Examples of conditions which will benefit – frontal lobe-related gait disorders, moderate to severe Parkinson's disease, or moderate ataxia.</li> </ul>
 <p>4 wheeled walkers</p>	<ul style="list-style-type: none"> <li>• Four legs, four wheels.</li> <li>• It has been modified to provide sturdier construction, larger wheels, hand-braking systems and a seat.</li> <li>• Can be used if the patient requires a larger base of support and does not rely on the walker to bear weight.</li> <li>• Best for higher functioning patients who walk long distances and require minimal weight bearing.</li> <li>• Suitable patients for this walker – patients with mild to moderate Parkinson's disease, ataxia as well as community ambulant patients.</li> </ul>
 <p>Platforms on walkers</p>	<ul style="list-style-type: none"> <li>• Forearm platforms are present instead of handles</li> <li>• Serves to redistribute the body weight so that device can be used without putting stress on the wrist or forearm.</li> </ul>

**Crutches**

Crutches increase patients' base of support, thereby improving lateral stability. In contrast to canes, the elderly patient may allow greater transfer of the body weight to the crutches. The use of crutches requires the elderly to have good stability, upper body and bilateral upper arm strengths.

**FIGURE 3. TYPES OF CRUTCHES AND FEATURES**

Type of Crutches	Features relevant to their use
 <p>Axillary crutches</p>	<ul style="list-style-type: none"> <li>• Provides support from axilla to the floor.</li> <li>• Often used bilaterally and requires good bilateral grasps, bilateral upper arm strength and trunk stability to use this aid.</li> <li>• Height of some axillary crutches adjustable to suit the patient's height</li> <li>• Allows up to 80% of patient's body weight to be displaced onto the crutches during ambulation<sup>10</sup></li> <li>• Patients should avoid resting their entire body weight onto the crutches to reduce the risk of compressive brachial neuropathies.</li> </ul>
 <p>Forearm crutches</p>	<ul style="list-style-type: none"> <li>• Provides support from wrist / elbow to the floor.</li> <li>• Often used bilaterally but can be used unilaterally.</li> <li>• Requires good bilateral grasps, bilateral upper arm strength and trunk stability to use this aid.</li> <li>• Height of some forearm crutches is adjustable to suit the patient's height</li> <li>• Allows up to 50% of patient's body weight to be displaced onto the crutches during ambulation<sup>10</sup></li> </ul>

**AN APPROACH TO PRESCRIBING AMBULATORY AIDS**

An approach to prescribing ambulatory aids is to go through the following 8 steps.

**(1) Review patient's condition & current weight bearing status**

A thorough review of patient's medical conditions is critical in determining if the elderly patient is safe for ambulation. When the patient is deemed unsafe for independent walking, family physicians should consider if the use of ambulatory aids would assist to maintain the patient's mobility independence.

In addition to the patient's medical conditions, family physicians should evaluate the patient's upper body strength, coordination, hand function and physical endurance as these functions are required for the proper use of ambulatory aids.

More importantly, family physicians must decide if the usage of ambulatory aids is feasible. Some medical conditions or injuries may cause mobility impairments that are too severe for an elderly to be helped by ambulatory aids. Others with cognitive impairment or psychiatric disorders may find it difficult to understand or remember how to use ambulatory aids. In these situations, wheel-chair ambulation may be the most suitable recommendation.

Patient's current weight bearing status also determines the recommendation on the type of ambulatory aids. For example, patients recovering from a recent hip fracture may be advised not to weight bear on the affected leg for a few months. In this situation, it may be appropriate to recommend a walking frame in the initial phase and change to a walking stick / quad stick when weight bearing is allowed on the affected leg.

**(2) Evaluate patient's ambulatory expectations and ambulatory requirements**

A patient's expectation of his mobility goes beyond the choice of ambulatory aid. If a patient has no desire for ambulation, he/she may do poorly in ambulatory rehabilitation or may even choose to avoid ambulation entirely. Family physicians are encouraged to explore deeper regarding patient's poor motivation (e.g. undiagnosed depression)

If patient's ambulatory expectation is beyond his/her physical capabilities, family physicians serve an important role in aligning patients' expectations.

**(3) Determine use of unilateral or bilateral support ambulatory aids**

The next consideration in the assessment is to determine if the patient needs to use one or two upper extremities for balance or weight bearing while walking. A quick screening test that the family physician can employ in the clinic would involve walking with the patient while holding his or her hand.<sup>7</sup> If the patient's gait and balance improve with the physician's support, the patient is likely to benefit from an ambulatory device. If a single assisting hand helps the patient walk, then logically a cane may be appropriate to recommend. However, if there is a need to hold both the patient's hands to steady the gait, a walker might be a better choice.

**(4) Choose the most appropriate ambulatory aid**

Table 2 shows the choice of ambulatory aids based on the considerations of the patient's conditions, expectations, and the need to use the upper extremities for balance or weight bearing while walking.

**TABLE 2. SUGGESTED CHOICE OF AMBULATORY AIDS**

Disability	Choice of ambulatory aids
Mildly impaired balance/stability	Single-point walking stick
Unilateral lower limb pain/mild weakness	Single-point walking stick
Moderate impaired balance/stability	Quad-stick
Moderate-to-severe unilateral weakness /hemiplegia	Quad-stick
Bilateral lower extremity weakness/paralysis	Bilateral crutches
Severely impaired stability	Walker
Impaired wrist or hand function	Platform forearm walker

**(5) Ensure proper fitting of the ambulatory aid**

With a cane or walker, the most accepted approach to measurement is to select an ambulatory aid with a length that equals the distance between the patient's wrist crease and the floor, measured when the arm is relaxed at the patient's side. The patient should be donning the shoes that will be worn when walking. The patient's elbow should be flexed 15°-30° when holding the cane in contact with the floor. The cane should be used on the opposite side of the affected leg. (See Figure 4)

When using axillary crutches, the top of the crutch should extend from a point the width of 2-3 fingers below the armpit (axilla) to a point on the floor outside the patient's foot. The patient's hand should rest at a level that allows him/her to flex his/her elbows about 15-30°.

**FIGURE 4. CORRECT AID HEIGHT**



\*The patient's left leg is the affected leg

The patient using axillary crutches

**(6) Provide education on the use of ambulatory aid**

Many patients benefit from referral to a physiotherapist for assistance with proper fitting of the device and additional training to use it effectively.

Walking on level ground with the use of a cane (See figure 5 - The patient's left leg is the affected leg). Hold the cane on the side of the sound leg. The cane is moved forward first, followed by the affected leg and lastly the sound leg.

Ascending steps with the use of a cane (See figure 6 - The patient's left leg is the affected leg). Hold the cane on the side of the sound leg. If the device is a quad cane, the base of the cane can be turned sideways to fit onto the step. When ascending steps, the cane is moved up the step first, followed by the sound leg and lastly the affected leg.

**FIGURE 5. WALKING ON LEVEL GROUND WITH THE USE OF A CANE**



**FIGURE 6. ASCENDING STAIRS WITH USE OF A CANE**



**FIGURE 7. DESCENDING STAIRS WITH USE OF A CANE**



Descending steps with the use of a cane (See figure 7 - The patient's left leg is the affected leg). When descending steps, the cane is placed on the step below first, followed by the affected leg and lastly the sound leg.

**(7) Determine if physical assistance is required in addition to the ambulatory aid**

Apart from the ambulatory aid recommendation, the family physician must also determine if the patient can ambulate with the ambulatory aid independently. If this is not possible, the family physician should recommend that a caregiver be present to provide physical assistance in ambulation. Carer training to assist in patient's ambulation is strongly recommended. It is also useful if family physicians have specific ambulatory devices in the clinic for demonstration. If in doubt, family physicians should consider referring the patient to a physiotherapist for a complete mobility assessment.

**(8) Review and maintenance of ambulatory aid**

The family physician should conduct regular reviews to ensure that the patient is using the ambulatory aid correctly. History of recurrent falls or recent near fall incidents whilst using ambulatory aids may indicate improper prescription or usage of ambulatory aids, and a through review is warranted.

Maintenance of ambulatory aids is also important. The walking frames need to be checked periodically. This includes reviewing the frames for metal fatigue, wheels and tips of the legs for wear and tear, and the handles for grip. Similarly for canes, the base of the canetip for wear and tear, the shaft for cracks, and the handle for grip.

**CONCLUSIONS**

Ambulatory aids extend the mobility of patients with gait disorders. It is important to know the functions of a cane, walker, and crutches. Go through the 8 steps of prescribing ambulatory aids to ensure effective use of ambulatory aids.

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**LEARNING POINTS**

- **Ambulatory aids extend the mobility of patients who have gait disorders**
- **Knowing the functions of a cane, walker, and crutches helps in appropriate prescription of these devices.**
- **In prescribing ambulatory aids, there are 8 steps to go through to ensure an appropriate choice is recommended.**

**ABSTRACT**

**Caregiving burden is expected to increase as the number of people requiring daily assistance with their activities of daily living rises. Caregiver health has a direct impact on the ability to provide care as caregiver health has been shown to impact the level of care that caregivers offer. Hence, interventions that reduce this psychological distress and facilitate caregivers' quality of life are needed. While there are existing resources to support and enable caregiving, more may need to be developed in order to prepare for the future.**

**Keywords: Caregiving; Caregiver Support; Caregiver training; Enablement; Service coordination**

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**INTRODUCTION**

It is estimated that there are approximately 210,800 caregivers in Singapore caring for seniors, children with special needs, the disabled, and the mentally and terminally ill (The Straits Times, 12 April 2004). This number is projected to increase as the numbers of people requiring daily assistance with activities of daily living will rise in the future, due to the ageing of the population, as well as the increase in physical and mental disabilities with rising life expectancy.

It is projected that by 2030, 20% of Singaporeans will be above the age of 65 (Ministry of Community Development, Youth and Sports, 2006). The increasing size of the elderly population relative to the younger cohorts will result in changes in the old-age dependency burden. The current ratio of seven adults aged 15-59 supporting one older person will shift to two adults supporting one older person in the year 2030. The disease profile in Singapore has also evolved, mirroring that of developed countries, which is shifting from communicable to lifestyle-related and chronic diseases associated with ageing, namely, cancer, heart disease, stroke and diabetes. Ongoing, rather than episodic management of these chronic diseases is essential to minimize the associated functional disabilities such as stroke from uncontrolled hypertension.

**WHY IS CAREGIVING A CONCERN**

Since the 1980s, various high level committees have been formed to address the challenges of an ageing population. In 2004, the Committee on Ageing Issues was set up to build on

the work done by previous committees. The Committee affirms support for older persons to age at home, in their own families and communities. The basic approach is that the family is considered the primary pillar of support, with community help as the next line (Mehta, 2007). As such, the Committee came up with a set of recommendations to support the family in their caring responsibilities. These included elder-friendly housing, a barrier-free and accessible environment for elders, improving the affordability of healthcare, and facilitating the elderly to be well-connected and active in society (Ministry of Community Development, Youth and Sports (MCYS), 2006).

Despite these measures, the strain on family caregivers is expected to rise. Family size is shrinking, dual-income families with traditional female caregivers in the workforce are rising and there is an increasing number of people who are unmarried (Mehta, 2007). These changes in social structure will lead to an increasing reliance on caregiving services.

The caregiver role is demanding, and for some whose disabilities are severe, it can be a lifelong responsibility. In a study of 61 family caregivers of homebound elders conducted by Mehta and Joshi (2001), three important findings emerged. First, there was an inverse relationship between the levels of stress of the carer and the physical dependency of the care recipient. Secondly, female caregivers were more likely to experience subjective burden and distress than their male counterparts. Thirdly, caregivers of patients suffering from Dementia, Hypertension and Parkinson's disease were relatively more stressed than other types of caregivers. Similarly, Pinquart and Sorensen's (2007) meta-analysis of 176 studies revealed that caregiver depressive symptomatology was the strongest predictor of physical health problems compared to other objective measures, such as number of chronic illnesses and socioeconomic status.

Research shows that poor caregiver health impacts on the caregivers' ability to provide care (De Frias et al., 2004; Hooker et al., 2002). Without adequate support and coping capabilities, caregivers are prone to exhaustion, emotional stress, financial and other care-related strains, resulting in caregiver burn-out and premature or unnecessary institutionalisation/hospitalisation of care recipients.

**CAREGIVER EDUCATION, SUPPORT AND ENABLEMENT**

Although caregiving can be stressful, its effects can be mitigated through caregiver education, support and enablement. A growing body of evidence indicates that caregiver education and support programs can delay nursing home placement and reduce the health care costs of care recipients (Cooke, McNally, Mulligan, Harrison & Newman, 2001; Mittelman, Ferris, Shulman, Steinberg & Levin, 1996).

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These reasons lead to the importance of interventions aimed at improving the situation for caregivers since preventing or minimizing caregiver burnout will help both caregivers and care recipients. These evidence-based treatments include a number of programs that seek to lessen caregiver burden and strain and to improve their psychological well-being—that is, reduce their levels of anxiety and depression. These programs differ and typically include a variety of educational and psychotherapeutic interventions, such as problem solving, coping-skills training, support groups, cognitive-behavioral therapy, and other types of individual and family counseling.

Brody, Green, and Koschera's (2003) meta-analysis of caregiver interventions found that those that targeted caregiver knowledge had the largest effect size. Caregiver knowledge is most beneficial, however, if the caregiver plays a more active role in knowledge acquisition (e.g., application of information through role-playing (Pinquart & Sorenson, 2006). Once the informational needs of the caregivers have been met, caregivers also benefit from training in general problem-solving skills, interventions that target managing the care recipient's behavior and the caregiver's own emotional response to caregiving.

Gallagher-Thompson and Coon's (2007) review of evidence-based psychological treatments identified three overarching categories: psychoeducational skill building, psychotherapy, and multicomponent interventions. Psychosocial intervention programs are designed to improve or increase the caregiver's skills in order to handle the caregiving situation, whereby providing relief to the caregiver and, at the same time, improving his or her caregiving capacity. The psychoeducational skill-building category focuses on educating caregivers about specific disorders (e.g., diabetes, stroke, Alzheimer's disease, etc.), as well as effective cognitive and behavioral problem-solving abilities specifically related to that disorder. The psychotherapy category involves forms of individual or group therapy or counseling. The final category—multicomponent—includes interventions that consist of two or more conceptually different approaches, such as participation in a support group, skill building, training, or respite care.

Pinquart and Sorenson's (2006) meta-analysis of more than 127 interventions found that multicomponent interventions were significant in delaying institutionalization as they are more intense and provide a broader array of services to caregivers. In another study of 199 caregivers of older adults with physical and/or cognitive problems, it was noted that caregiver depression decreased significantly after participating in a community-based caregiver support and training program that comprised skills training with a psychoeducational component designed to alleviate caregiver stress and burden (Huynh-Hohnbaum, Villa, Aranda and Lambdnos (2008).

In Singapore, hospitals and many other organisations, such as TOUCH Community Service and Tsao Foundation, now provide caregiver training, albeit in various forms. The Caregiver Training Grant from MCYS is now available to

caregivers. The Grant helps caregivers defray the cost of training and enable them to build their capabilities in caring for the physical and socio-emotional needs of their dependents. Regardless of income levels, families/caregivers can tap on an annual training grant of \$200 for every dependent under their care to attend approved training programmes. The Centre for Enabled Living (CEL), launched in 2009, is also working with Workforce Development Agency, Tsao Foundation, NTUC Eldercare and other training bodies to develop more structured training courses for both informal and formal caregivers.

When offering caregiver education programs, it is important to ensure that the program meets caregivers' needs, by considering the need for education on disease processes, coping skills, problem solving skills and support. It is important to decide whether the program should reach out to all caregivers or whether it should target particular subgroups of caregivers. Casting a broad net is appealing because it enables the organization to reach out to the largest possible group of caregivers. Programs that invite broad participation, however, have to keep education and training activities at a general level in order to be of interest to all participants. By targeting specific caregiver subgroups, it enables the trainer to impart specialized information and knowledge to caregivers of persons with particular health problems such as Alzheimer's disease. It also enables the trainer to engage caregivers who might otherwise not participate in a more general caregiver education and support program.

Program evaluation should be a routine part of any caregiver education and training program. At minimum, caregivers should be asked to evaluate the trainer, the usefulness of the program, what features were least and most helpful, and what uncovered issues should be included in future programs. More extensive evaluations can include assessments of the impact of a particular program on members' knowledge and skills, their ability to problem solve or to cope with pressing problems, or their well-being.

Over the last few years, there has been increasing support for family caregivers to empower and enable them to carry out their family caregiving role. New and expanded community-based services were established, run mainly by the volunteer organizations. These include programmes that provide home or community-based medical, nursing and rehabilitative care, palliative care, home help, day care, counselling and befriending. Some voluntary welfare organisations also provide counselling to family caregivers, while others run caregiver support groups.

## KEY CHALLENGES AND IMPLICATIONS

Despite the availability of resources, it is recognised that there is still scope for more services to be provided in order for caregivers to be empowered as the first line of support for the elderly.

## Service Coordination

The lack of core community-based services greatly impedes attempts to provide comprehensive care. In today's caregiving landscape, not many service providers are equipped to provide integrated home care services – comprising medical, nursing and social care. More can be done to ensure a more efficient delivery of person-centric care rather than service-centric care. For example, one still needs to tap on multiple service providers if the caregiver requires services such as home help and home therapy. One therefore needs to be very resourceful and creative in piecing together social services from the many community-based programs, which potentially can impede the ability to create a continuum of care. Adverse outcomes can ensue if services are poorly coordinated.

For this reason, the establishment of the Centre for Enabled Living (CEL) is a step in the right direction. CEL will enhance access to social care support services and schemes by acting as a convenient first-stop information agency. CEL would assess needs and list out the options available for the elderly and his/her caregivers to make an informed decision. CEL will also work closely with the Agency for Integrated Care to help persons who need care and their families navigate the continuum of medical-social services more efficiently.

## Caregiver issues

Low-income families, facing multiple financial and social stress, are often unable to cope with caregiving burdens in the face of inadequate community-based support. This results in a poor quality of life for the older person and the family, and in some cases, premature placement in a nursing home, if and when such is available. Support of family members also cannot always be assumed. Some may not be in a position to help or family dynamics may be such that support is not feasible or acceptable. Caregivers with little family support may need more active outreach from professionals.

Bridging health and social care becomes even more critical and emphasis needs to be given to strengthening broad-based support for family caregivers through such interventions as training programmes, information services and mutual self-help networks. Opportunities should be provided for these

caregivers to talk through their concerns, fears and plans with a professional as they see fit, and at a time that is appropriate for them.

It is also necessary that national standards of training be developed and further research be conducted on care recipient outcomes and satisfaction, as well as assistive technologies to aid in caregiving. By designing programs that meet the needs of caregivers as they too age, we can begin to forestall and, perhaps, reverse the health and mental-health vulnerabilities associated with providing care over time.

## REFERENCES AND FURTHER READING

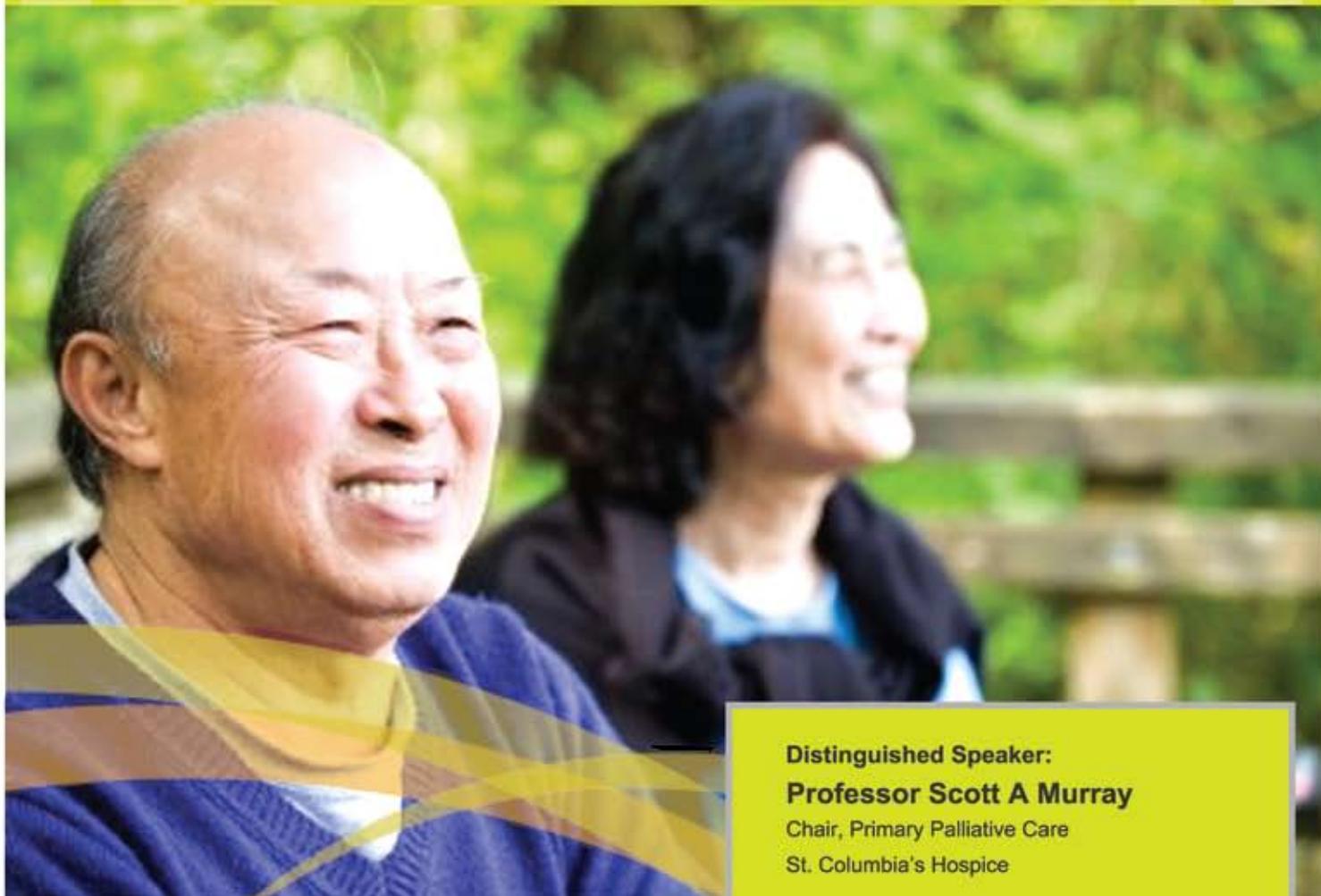
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## LEARNING POINTS

- **The number of caregivers is expected to rise in line with a growing elderly population and increasing physical and mental disabilities associated with rising life expectations.**
  - **Caregivers are faced with multiple burdens, compounded by changes in social structure.**
  - **Caregiver support, training and enablement programs are available to assist caregivers in their caregiving role, albeit more may need to be done in view of rising caregiver burdens.**
-

# Eldercare & Palliative Care in the Community



**Topic:** **The Potential of Primary Care to Deliver Palliative Care**

Professor Scott A Murray

**Advanced Care Planning for the Elderly**

Dr Siew Chee Weng, Associate Consultant, TTSH (TBC)

**Voice Disorders amongst the Elderly**

Dr Duncan Wong, Consultant, KTPH

**Poor Vision in the Elderly**

Dr Clement Tan, Consultant, NUH

**Distinguished Speaker:**

**Professor Scott A Murray**

Chair, Primary Palliative Care

St. Columbia's Hospice

**Special Speaker:**

**Dr Clement Tan, NUH**

**Dr Duncan Wong, KTPH**

**Dr Siew Chee Weng, TTSH (TBC)**

Venue **NUSS Guild House**

Date **19 Nov 2011**

Time **1pm to 5pm**

CME points **To be confirmed**

Co-Organised By:



## ASSESSMENT OF 30 MCQs

### FPSC NO : 42 MCQs on Integrated Eldercare Course Submission DEADLINE : 14 October 2011

#### INSTRUCTIONS

- To submit answers to the following multiple choice questions, you are required to log on to the College On-line Portal ([www.cfps2online.org](http://www.cfps2online.org)).
- Attempt ALL the following multiple choice questions.
- There is only ONE correct answer for each question.
- The answers should be submitted to the College of Family Physicians Singapore via the College On-line Portal before the submission deadline stated above.

1. **With regards to common everyday health related services, which of the following pairs of associations is CORRECT?**
  - A. Long term care and palliative care.
  - B. Social care and volunteer home help.
  - C. Short term care and sheltered home.
  - D. Supportive services and oxygen concentrators.
  - E. Aids and appliances and ambulance.
2. **Three levels of integration of care have been described, namely linkage, co-ordination, and full integration. Which of the following statements in this context is CORRECT?**
  - A. Linkage services in Singapore serve people with complex healthcare needs.
  - B. A good example of linkage services is care delivered by multiple disciplinary teams.
  - C. Current integrated care networks in Singapore are at the level of co-ordination.
  - D. Into the future, Singapore aims to provide full integrated services for every elderly patient.
  - E. None of the above is correct.
3. **In the context of integrated care, a multidisciplinary team provides comprehensive assessment of medical, functional, psychological needs and formulates care plans for the patient. Which of the following is NOT a member of such a team?**
  - A. Social worker.
  - B. Allied health personnel.
  - C. Occupational therapist.
  - D. Health policy maker.
  - E. Physiotherapist.
4. **Different homes have different requirements for placement. For example, St Vincent's Home accepts only patients on Public Assistance (PA) and who are able to perform X. What is X?**
  - A. Communicate their needs.
  - B. Cook and wash their own clothes.
  - C. Do simple calculations.
  - D. Feed themselves.
  - E. Bathe themselves unaided.
5. **Madam Tan, aged 70 years is admitted for community acquired pneumonia. She is due for discharge. She is ADL independent. Which of the following is an appropriate discharge action?**
  - A. Identify who is her primary care provider
  - B. Referral to medical social worker.
  - C. Referral to AIC nurse.
  - D. Identify care giver and decision maker.
  - E. Refer to dietitian.
6. **Which regards to the history of the Agency for Integrated Care, it began as a Care Liason Service with the key functions of X. What was X?**
  - A. Referrals to home therapy.
  - B. Referrals to home nursing.
  - C. Referrals to home medical care.
  - D. Referrals to day rehabilitation centres.
  - E. None of the above.
7. **The Agency for Integrated Care functions as a National Integrator. As such, it performs the following functions EXCEPT X. What is X?**
  - A. Facilitates the integration of healthcare services.
  - B. Implements a national care assessment framework.
  - C. Develops acute hospital services.
  - D. Coordinates referrals to intermediate and long-term care services.
  - E. Facilitates improvement of quality of long-term care services.
8. **Integrated care has become a major theme for healthcare organisations throughout the world. To succeed in this, Singapore needs to move towards a new model of care. Which of the following statements best describes this new model of care?**
  - A. Care that adopts a private-public mix approach.
  - B. Care that adopts a holistic and patient-centric approach.
  - C. Care that maximises the acute centric approach.
  - D. Care that pays attention to linkage, co-ordination, and full integration.
  - E. Care that downplays the importance of acute care.

9. With regards to the **ACTION Team project of the Agency for Integrated Care, what is the aim of the project?**
- Help patients make the important transition from hospital into their home or community.
  - Help to reduce acute hospital stay.
  - Help to reduce readmissions.
  - Help to reduce healthcare expenditure.
  - Help to maximise the use of intermediate and long-term care facilities.
10. In the **ACTION Team Project** what patients are the focus of the referral management teams?
- Patients with mild and moderate healthcare needs.
  - Patients with poor pre-existing social support
  - Patients with psychiatric problems.
  - Patients with complex medical and social needs.
  - Every patient 65 years and older.
11. By 2030, the resident population of Singapore aged 65 and above is projected to be X. What is X?
- 600,000.
  - 700,000.
  - 800,000.
  - 900,000.
  - 1,000,000.
12. Singapore's healthcare financing framework is made up of 5 layers of support. Which of the following is the first layer of support?
- Self funded or family funded financing.
  - Heavy government subsidy of up to 80% of the total health bill in acute public hospital wards.
  - MOH subsidy for the needy through the Primary Care Partnership Scheme (PCPS) and Intermediate and Long Term Care (ILTC) services.
  - Medifund "Safety net" financing.
  - Insurance e.g. MediShield and ElderShield.
13. Medisave is a financing scheme set up to help individuals put aside part of the income for healthcare related expenses. With regards to the use of Medisave for outpatient treatment, which of the following statements is **CORRECT**?
- Desferrioxamine drug and blood transfusion for Thalassemia up to \$500 per month.
  - Positive airway pressure therapy up to \$100 per month.
  - Immuno-suppressants for patients after organ transplant up to \$600 per month.
  - Approved drugs for HIV/Drugs up to \$550 per month.
  - All of the above are correct.
14. With regards to the use of Medisave for Inpatient treatment, which of the following statements is **CORRECT**?
- Approved aesthetic surgery.
  - Approved convalescent hospitals up to \$200 per day for daily hospital charges.
  - Daily ward charges.
  - Surgical operation fees but not the fees for use of operating theatres.
  - All of the above are correct.
15. About the Senior Mobility Fund (SMF), which of the following statements about eligibility criteria is **CORRECT**?
- Singapore citizen aged 60 and above.
  - Means tested to be in the lower 40% income group.
  - Has less than three ADL impairments.
  - Able to count money.
  - All the above are correct.
16. "Problem medications" are an indicator of the higher risk patient for unscheduled readmission and poorer outcome after discharge. Which of the following is an example of a "problem medication"?
- Digoxin.
  - Aspirin.
  - Glipizide.
  - Diclofenac.
  - Amoxicillin.
17. With regards to the higher risk patient for unscheduled re-admission and poorer outcome, which of the following psychological issues is an indicator?
- Borderline personality disorder.
  - Obsessive compulsive disorder.
  - Phobia with agoraphobia.
  - Somatisation disorder.
  - Depression.
18. With regards to the higher risk patient for unscheduled re-admission and poorer outcome, polypharmacy is an indicator. Polypharmacy is defined as having more than X medications. What is X?
- 4.
  - 5.
  - 6.
  - 7.
  - 8.
19. With regards to the higher risk patient for unscheduled re-admission and poorer outcome, patient education and instructions is one solution. Unfortunately, patients recall less than X% of what is taught. What is X?
- 10.
  - 20.
  - 30.
  - 40.
  - 50.
20. Regarding the meaning of "medication reconciliation", which of the following is the **BEST** statement?
- The list of medications has no omissions.
  - The list of medications is duplication free.
  - The list of medications is the most accurate.
  - The list of medications has no dosing errors.
  - The list of medications is free of potential drug interactions.

- 21. With regards to canes (walking sticks), which of the following statements is CORRECT?**
- The offset cane is useful in patients with painful lower limb joints.
  - The quad stick allows less displacement of the patient's weight onto the shaft of the stick than the offset cane.
  - The functional grip cane allows people with poor grip function to use it.
  - The standard cane is adjustable to suit the user's height.
  - None of the above is correct.
- 22. With regards to walkers (walking frames), which of the following statements is CORRECT?**
- Suitable patients for the use of the 2-wheel walker are patients with severe ataxia.
  - The standard walker has no wheels which therefore makes the gait fluid, namely no starts and stops.
  - The standard walker does not allow the patient to displace his or her weight onto the walker.
  - The 2 wheel walker benefits the patient with a parietal lobe related gait disorder.
  - Suitable patients for the use of the 4-wheeled walker are patients with mild to moderate Parkinson's disease.
- 23. About the use of axillary clutches, which of the following statements is CORRECT?**
- It allows up to 80% of the patient's body weight to be displaced on to the clutches during ambulation.
  - The height is not adjustable so they must be custom made.
  - Patients can rest their entire body onto the clutches to reduce the risk of compressive brachial neuropathies.
  - Trunk stability is not a requirement to use this walking aid.
  - It provides support from forearm to the floor.
- 24. Mr. Tan aged 75 has mild impaired balance and mild instability. He needs to walk short distances. Which of the following walking aid would you recommend him?**
- Quad stick.
  - Bilateral clutches.
  - Two-wheel walker.
  - Single-point walking stick.
  - Four-wheel walker.
- 25. Mr Tan who has a stroke with residual hemiparesis on the left side. He intends to descend a flight of stairs while using the quad stick. About the first action to take, which of the following is CORRECT?**
- The affected left leg is placed on the step below.
  - The right leg is placed on the step below.
  - The quad stick is placed on the step below.
  - He holds on to the wall with his right hand.
  - The quad stick should not be used at all.
- 26. The number of of seven adults aged 15-59 supporting one older person is expected to decrease as our population ages into the future. In 2030, it is estimated that there will be X adults supporting one older person. What will X be?**
- 1.
  - 2.
  - 3.
  - 4.
  - 5.
- 27. With regard to caregiver support in frail elderly person, which of the following is considered o be the primary pillar of support?**
- The community.
  - The family.
  - The Ministry of Health.
  - The Ministry of Community, Youth, and Sports.
  - The individual himself.
- 28. Programmes are available to lessen caregiver burden, strain, and to improve psychological well-being. These programmes typically include X. What is X?**
- Problem solving.
  - Coping skills training.
  - Cognitive-behavioural therapy.
  - Individual and family counseling.
  - All of the above.
- 29. With regards to caregiver interventions to enable the caregiver, research has shown that X has the largest effect size. What is X?**
- Role playing exercises.
  - Skills in managing caregiver's own emotional response to caregiving.
  - Targetted caregiver knowledge as the initial intervention.
  - Training in managing care recipient's behaviour.
  - Training in cognitive-behaviour therapy.
- 30. The Caregiver Training Grant from MCYS is now available to caregivers. Regardless of income levels, families/caregivers can tap on an annual training grant of X for every independent under their care to attend approved training programmes. What is X?**
- \$400.
  - \$350.
  - \$300.
  - \$250.
  - \$200.



# Senior's Mobility Fund

Helping your patients stay mobile in the community.

## What is Senior's Mobility Fund?

Many elderly are unable to get out of their apartments to socialise because of their disabilities and they cannot afford the mobility devices.

The Senior's Mobility Fund seeks to assist the elderly in getting devices to help them remain ambulant in the community to perform their daily activities.

## What is the funding amount?

Types of Devices	Funding Cap
<b>Wheelchairs:</b> 	<b>90%</b> of actual cost or <b>\$180</b> whichever is lower. <b>Example:</b> For a wheelchair that cost \$280, you will need to pay \$100.
<b>Others:</b> Walking frame, quad-stick, walking stick 	<b>90%</b> of actual cost or <b>\$135</b> whichever is lower. <b>Example:</b> For a walking frame that cost \$70, you will need to pay \$7.

## Who can apply for the Senior's Mobility Fund (SMF)?

Your patients need to fulfill all the eligibility criteria below:

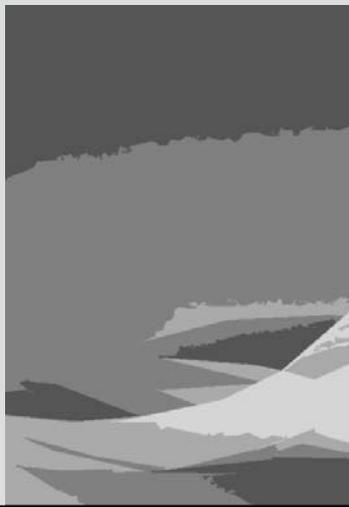
- Singaporean Citizens (SC) aged 60 and above
- Be Means Tested: Applicant's Assessable Income of <=\$30,000 in year 2010 and Annual Value of Home of <=\$7,000 as at 31 Dec 2010
- Undergo assessment to determine the need and type of mobility device (to be done by a qualified therapist)



To find out more, call  
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## **R E A D I N G S**

- A Selection of Ten Current Readings on Topics Related To Integrated Eldercare Course

**A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO  
INTEGRATED ELDERCARE COURSE –**

**some available as free full-text and some requiring payment**

**Selection of readings made by A/Prof Goh Lee Gan**

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**READING I – Medication therapy management**

**Ramalho de Oliveira D, Brummel AR, Miller DB. Medication therapy management: 10 years of experience in a large integrated health care system. J Manag Care Pharm. 2010 Apr;16(3):185-95. PubMed PMID: 20331323.**

URL: <http://www.amcp.org/data/jmcp/185-195.pdf> (free full text)

Ramalho de Oliveira D, Brummel AR, Miller DB. Fairview Pharmacy Services, 711 Kasota Ave. SE, Minneapolis, MN 55414, USA. dolivei1@fairview.org

**BACKGROUND:** Medication therapy management (MTM) was officially recognized by the federal government in the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, which requires Medicare Part D plans that offer prescription drug coverage to establish MTM programs (MTMPs) for eligible beneficiaries. Even though the term “MTM” was first used in 2003, pharmacists have provided similar services since the term “pharmaceutical care” was introduced in 1990. Fairview Health Services, a large integrated health care system, implemented a standardized pharmaceutical care service system in 1998, naming it a pharmaceutical care-based MTM practice in 2006.

**OBJECTIVE:** To present the clinical, economic, and humanistic outcomes of 10 years of delivering MTM services to patients in a health care delivery system.

**METHODS:** Data from MTM services provided to 9,068 patients and documented in electronic therapeutic records were retrospectively analyzed over the 10-year period from September 1998 to September 2008 in 1 health system with 48 primary care clinics. Patients eligible for MTM services were aged 21 years or older and either paid for MTM out of pocket or met their health care payer’s criteria for MTM reimbursement; the criteria varied for Medicaid, Medicare, and commercially insured enrollees. All MTM was delivered face to face. Health data extracted from the electronic therapeutic record by the present study’s investigators included patient demographics, medication list, medical conditions, drug therapy problems identified and addressed, change in clinical status, and pharmacist-estimated cost savings. The clinical status assessment was a comparison of the first and most recent MTM visit to measure whether the patient achieved the goals of therapy for each medical condition (e.g., the blood pressure of a patient with diabetes and hypertension will be less than 130/80 millimeters mercury [mmHg] in 1 month; the patient with allergic rhinitis will be relieved of his complaints of nasal congestion, runny nose, and eye itching within 5 days). Goals were set according to evidence-based literature and patient-specific targets determined cooperatively by pharmacists, patients, and physicians. Cost-savings calculations represented MTM pharmacists’ estimates of medical services (e.g., office visits, laboratory services, urgent care visits, emergency room visits) and lost work time avoided by the intervention. All short-term (3-month) estimated health care savings that resulted from addressing drug therapy problems were analyzed. The expenses of these avoided services were calculated using the health system’s contracted rates for services provided in the last quarter of 2008. The return on investment (ROI) was calculated by dividing the pharmacist-estimated savings by the cost of MTM services in 2008 (number of MTM encounters times the average cost of an MTM visit). The humanistic impact of MTM services was assessed using the results from the second patient satisfaction survey administered in 2008 (new patients seen from January through December 2008) for the health system’s MTM program.

**RESULTS:** A total of 9,068 patient records were in the documentation system as of September 30, 2008. During the 10-year period, there were 33,706 documented encounters (mean 3.7 encounters per patient). Of 38,631 drug therapy problems identified and addressed by MTM pharmacists, the most frequent were a need for additional drug

therapy (n = 10,870, 28.1%) and subtherapeutic dosage (n =10,100, 26.1%). In the clinical status assessment of the 12,851 medical conditions in 4,849 patients who were not at goal when they enrolled in the program, 7,068 conditions (55.0%) improved, 2,956 (23.0%) were unchanged, and 2,827 (22.0%) worsened during the course of MTM services. Pharmacist-estimated cost savings to the health system over the 10-year period were \$2,913,850 (\$86 per encounter) and the total cost of MTM was \$2,258,302 (\$67 per encounter), for an estimated ROI of \$1.29 per \$1 in MTM administrative costs. In the patient satisfaction survey, 95.3% of respondents agreed or strongly agreed that their overall health and wellbeing had improved because of MTM.

**CONCLUSION:** Pharmacist estimates of the impact of an MTM program in a large integrated health care system suggest that the program was associated with improved clinical outcomes and cost savings. Patient satisfaction with the program was high.

PMID: 20331323 [PubMed - indexed for MEDLINE]

## READING 2 – Primary palliative care

**Mitchell GK. Primary palliative care - facing twin challenges. Aust Fam Physician. 2011 Jul;40(7):517-8. PubMed PMID: 21743860.**

URL: <http://www.racgp.org.au/afp/201107/43060> (free full text)

Mitchell GK. MBBS, PhD, FRACGP, FACHPM, is Professor, Centre for Primary Healthcare Innovation, The University of Queensland.

As Australia's population ages, three things are inevitable: more people will develop chronic illnesses; more will grow very ill and more will die. Blueprints for the future suggest an increasingly important role for general practitioners and primary healthcare in palliative care.

PMID: 21743860 [PubMed - in process]

## READING 3 – Integrated post-discharge transitional care

**Shu CC, Hsu NC, Lin YF, Wang JY, Lin JW, Ko WJ. Integrated post-discharge transitional care in a hospitalist system to improve discharge outcome: An experimental study. BMC Med. 2011 Aug 17;9(1):96. [Epub ahead of print] PubMed PMID: 21849018.**

URL: <http://www.biomedcentral.com.libproxy1.nus.edu.sg/1741-7015/9/96> (free full text)

**ABSTRACT: BACKGROUND:** The post-discharge period is a vulnerable time for patients with high rates of adverse events that may cause unnecessary readmissions, especially in the elderly. Because post-discharge care continuity is easily interrupted after hospitalist care, close follow-up may decrease readmission. This study aimed to investigate the impact of a quality improvement program - integrated post-discharge transitional care (PDTC) - in Taiwan's hospitalist system. **METHODS:** From December 2009 to May 2010, patients admitted to the hospitalist ward of a medical center in Taiwan, and discharged alive to home care were included. Quality improvement intervention in the PDTC program, including disease-specific care plan, telephone monitoring, hotline counseling, and referral to hospitalist-run clinic were performed in the latter four months in the intervention group while the control group was recruited in the first two months of the study period. The primary endpoint was unplanned readmission or death within 30 days after discharge. **RESULTS:** There were 94 and 219 patients in the control and intervention groups, respectively. Both groups had similar characteristics on admission and discharge. In the intervention group, 18 patients with worsening disease-specific indicators by telephone monitoring and 21 with new/worsening symptoms by hotline

counseling were associated with a higher rate of unplanned readmission than those without worsening indicator ( $p=0.031$ ) and symptoms ( $p=0.019$ ), respectively. Those who received PDTC had lower rate of readmission and death within 30 days post-discharge than the control group (15% vs. 25%,  $p=0.021$ ). Non-use of a hospitalist-run clinic and presence of underlying malignancy were other independent factors for 30-day post-discharge readmission and death. CONCLUSION: Integrated PDTC using disease-specific care, telephone monitoring, hotline counseling, and a hospitalist-run clinic can reduce post-discharge readmission and death.

PMID: 21849018 [PubMed - as supplied by publisher]

#### READING 4 – Integrated health care in Sweden

**Ahgren B, Axelsson R. A decade of integration and collaboration: the development of integrated health care in Sweden 2000-2010. *Int J Integr Care*. 2011 Jan;11 Spec Ed:e007. Epub 2011 Mar 9. PubMed PMID: 21677844; PubMed Central PMCID: PMC3111884.**

URL: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3111884/?tool=pubmed> (free full text)

Ahgren B, Axelsson R. Nordic School of Public Health, P.O. Box 12133, SE-402 42 Göteborg, Sweden.

INTRODUCTION: The recent history of integrated health care in Sweden is explored in this article, focusing on the first decade of the 2000s. In addition, there are some reflections about successes and setbacks in this development and challenges for the next decade.

DESCRIPTION OF POLICY AND PRACTICE: The first efforts to integrate health care in Sweden appeared in the beginning of the 1990s. The focus was on integration of intra-organisational processes, aiming at a more cost-effective health care provision. Partly as a reaction to the increasing economism at that time, there was also a growing interest in quality improvement. Out of this work emerged the 'chains of care', integrating all health care providers involved in the care of specific patient groups. During the 2000s, many county councils have also introduced inter-organisational systems of 'local health care'. There has also been increasing collaboration between health professionals and other professional groups in different health and welfare services.

DISCUSSION AND CONCLUSION: Local health care meant that the chains of care and other forms of integration and collaboration became embedded in a more integrative context. At the same time, however, policy makers have promoted free patient choice in primary health care and also mergers of hospitals and clinical departments. These policies tend to fragment the provision of health care and have an adverse effect on the development of integrated care. As a counterbalance, more efforts should be put into evaluation of integrated healthcare, in order to replace political convictions with evidence concerning the benefits of such health care provision.

PMCID: PMC3111884 PMID: 21677844 [PubMed]

#### READING 5 – Integrated care in Quebec, Canada

**Vedel I, Monette M, Beland F, Monette J, Bergman H. Ten years of integrated care: backwards and forwards. The case of the province of Québec, Canada. *Int J Integr Care*. 2011 Jan;11 Spec Ed:e004. Epub 2011 Mar 7. PubMed PMID: 21677842; PubMed Central PMCID: PMC3111887.**

URL: <http://www.ncbi.nlm.nih.gov/pmc/articles/pmid/21677842/?tool=pubmed> (free full text)

Vedel I, Monette M, Beland F, Monette J, Bergman H. Solidage-McGill University-Université de Montreal Research Group on Frailty and Aging, Center for Clinical Epidemiology and Community Studies, Lady Davis Institute for Medical Research, Jewish General Hospital, McGill University, Montreal, Quebec, Canada.

**INTRODUCTION:** Québec's rapidly growing elderly and chronically ill population represents a major challenge to its healthcare delivery system, attributable in part to the system's focus on acute care and fragmented delivery.

**DESCRIPTION OF POLICY PRACTICE:** Over the past few years, reforms have been implemented at the provincial policy level to integrate hospital-based, nursing home, homecare and social services in 95 catchment areas. Recent organizational changes in primary care have also resulted in the implementation of family medicine groups and network clinics. Several localized initiatives were also developed to improve integration of care for older persons or persons with chronic diseases.

**CONCLUSION AND DISCUSSION:** Québec has a history of integration of health and social services at the structural level. Recent evaluations of the current reform show that the care provided by various institutions in the healthcare system is becoming better integrated. The Québec health care system nevertheless continues to face three important challenges in its management of chronic diseases: implementing the reorganization of primary care, successfully integrating primary and secondary care at the clinical level, and developing effective governance and change management. Efforts should focus on strengthening primary care by implementing nurse practitioners, developing a shared information system, and achieving better collaboration between primary and secondary care.

PMCID: PMC3111887 PMID: 21677842 [PubMed]

## READING 6 – Integrated care in Quebec, Canada

**Berchtold P, Peytremann-Bridevaux I. Integrated care organizations in Switzerland. *Int J Integr Care.* 2011 Jan;11 Spec Ed:e010. Epub 2011 Mar 14. PubMed PMID: 21677845; PubMed Central PMCID: PMC3111889.**

URL: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3111889/> (free full text)

Berchtold P, Peytremann-Bridevaux I. College for Management in Healthcare and Forum Managed Care (FMC), Freiburgstrasse 41, CH-3010 Bern, Switzerland.

**INTRODUCTION:** The Swiss health care system is characterized by its decentralized structure and high degree of local autonomy. Ambulatory care is provided by physicians working mainly independently in individual private practices. However, a growing part of primary care is provided by networks of physicians and health maintenance organizations (HMOs) acting on the principles of gatekeeping.

**TOWARDS INTEGRATED CARE IN SWITZERLAND:** The share of insured choosing an alternative (managed care) type of basic health insurance and therefore restrict their choice of doctors in return for lower premiums increased continuously since 1990. To date, an average of one out of eight insured person in Switzerland, and one out of three in the regions in north-eastern Switzerland, opted for the provision of care by general practitioners in one of the 86 physician networks or HMOs. About 50% of all general practitioners and more than 400 other specialists have joined a physician networks. Seventy-three of the 86 networks (84%) have contracts with the healthcare insurance companies in which they agree to assume budgetary co-responsibility, i.e., to adhere to set cost targets for particular groups of patients. Within and outside the physician networks, at regional and/or cantonal levels, several initiatives targeting chronic diseases have been developed, such as clinical pathways for heart failure and breast cancer patients or chronic disease management programs for patients with diabetes.

**CONCLUSION AND IMPLICATIONS:** Swiss physician networks and HMOs were all established solely by initiatives of physicians and health insurance companies on the sole basis of a healthcare legislation (Swiss Health Insurance Law, KVG) which allows for such initiatives and developments. The relevance of these developments towards more integration of healthcare as well as their implications for the future are discussed.

PMCID: PMC3111889 PMID: 21677845 [PubMed]

during a pandemic. PMID: 20505904 [PubMed - indexed for MEDLINE]

**READING 7 – Development Model for Integrated Care**

**Minkman MM, Vermeulen RP, Ahaus KT, Huijsman R. The implementation of integrated care: the empirical validation of the Development Model for Integrated Care. BMC Health Serv Res. 2011 Jul 30;11(1):177. [Epub ahead of print] PubMed PMID: 21801428.**

URL: <http://www.biomedcentral.com/1472-6963/11/177> (free full text)

**ABSTRACT: BACKGROUND:** Integrated care is considered as a strategy to improve the delivery, efficiency, client outcomes and satisfaction rates of health care. To integrate the care from multiple providers into a coherent client-focused service, a large number of activities and agreements have to be implemented like streamlining information flows and patient transfers. The Development Model for Integrated care (DMIC) describes nine clusters containing in total 89 elements that contribute to the integration of care. We have empirically validated this model in practice by assessing the relevance, implementation and plans of the elements in three integrated care service settings in The Netherlands: stroke, acute myocardial infarct (AMI), and dementia. **METHODS:** Based on the DMIC, a survey was developed for integrated care coordinators. We invited all Dutch stroke and AMI-services, as well as the dementia care networks to participate, of which 84 did (response rate 83 %). Data were collected on relevance, presence, and year of implementation of the 89 elements. The data analysis was done by means of descriptive statistics, Chi Square, ANOVA and Kruskal-Wallis H tests.

**RESULTS:** The results indicate that the integrated care practice organizations in all three care settings rated the nine clusters and 89 elements of the DMIC as highly relevant. The average number of elements implemented was 50 +/- 18, 42 +/- 13, and 45 +/- 22 for stroke, acute myocardial infarction, and dementia care services, respectively. Although the dementia networks were significantly younger, their numbers of implemented elements were comparable to those of the other services. The analyses of the implementation timelines showed that the older integrated care services had fewer plans for further implementation than the younger ones. Integrated care coordinators stated that the DMIC helped them to assess their integrated care development in practice and supported them in obtaining ideas for expanding their integrated care activities.

**CONCLUSIONS:** Although the patient composites and the characteristics of the 84 participating integrated care services differed considerably, the results confirm that the clusters and the vast majority of DMIC elements are relevant to all three groups. Therefore, the DMIC can serve as a general quality management tool for integrated care. Applying the model in practice can help in steering further implementations as well as the development of new integrated care practices.

PMID: 21801428 [PubMed - as supplied by publisher]

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**READING 8 – Multi-professional and multidimension intervention**

**Wilhelmson K, Duner A, Eklund K, Gosman-Hedström G, Blomberg S, Hasson H, Gustafsson H, Landahl S, Dahlin-Ivanoff S. Design of a randomized controlled study of a multi-professional and multidimensional intervention targeting frail elderly people. BMC Geriatr. 2011 May 14;11(1):24. PubMed PMID: 21569570; PubMed Central PMCID: PMC3118103.**

URL: <http://www.biomedcentral.com/1471-2318/11/24> (free full text)

Wilhelmson K, Duner A, Eklund K, Gosman-Hedström G, Blomberg S, Hasson H, Gustafsson H, Landahl S, Dahlin-Ivanoff S. The Swedish Institute for Health Sciences, University of Gothenburg and Lund, Sweden. katarina.wilhelmson@socmed.gu.se

**BACKGROUND:** Frail elderly people need an integrated and coordinated care. The two-armed study “Continuum of care for frail elderly people” is a multi-professional and multidimensional intervention for frail community-dwelling elderly people. It was designed to evaluate whether the intervention programme for frail elderly people can reduce the number of visits to hospital, increase satisfaction with health and social care and maintain functional abilities. The implementation process is explored and analysed along with the intervention. In this paper we present the study design, the intervention and the outcome measures as well as the baseline characteristics of the study participants.

**METHODS/DESIGN:** The study is a randomised two-armed controlled trial with follow ups at 3, 6 and 12 months. The study group includes elderly people who sought care at the emergency ward and discharged to their own homes in the community. Inclusion criteria were 80 years and older or 65 to 79 years with at least one chronic disease and dependent in at least one activity of daily living. Exclusion criteria were acute severely illness with an immediate need of the assessment and treatment by a physician, severe cognitive impairment and palliative care. The intention was that the study group should comprise a representative sample of frail elderly people at a high risk of future health care consumption. The intervention includes an early geriatric assessment, early family support, a case manager in the community with a multi-professional team and the involvement of the elderly people and their relatives in the planning process.

**DISCUSSION:** The design of the study, the randomisation procedure and the protocol meetings were intended to ensure the quality of the study. The implementation of the intervention programme is followed and analysed throughout the whole study, which enables us to generate knowledge on the process of implementing complex interventions. The intervention contributes to early recognition of both the elderly peoples’ needs of information, care and rehabilitation and of informal caregivers’ need of support and information. This study is expected to show positive effects on frail elderly peoples’ health care consumption, functional abilities and satisfaction with health and social care.

**TRIAL REGISTRATION:** ClinicalTrials.gov: NCT01260493.

PMCID: PMC3118103 PMID: 21569570 [PubMed - in process]

**READING 9 – Models of home and community services for older persons**

**Low LF, Yap M, Brodaty H. A systematic review of different models of home and community care services for older persons. BMC Health Serv Res. 2011 May 9;11:93. PubMed PMID: 21549010; PubMed Central PMCID: PMC3112399.**

URL: <http://www.biomedcentral.com.libproxy1.nus.edu.sg/1472-6963/11/93> (free full text)

Low LF, Yap M, Brodaty H. Dementia Collaborative Research Centre, School of Psychiatry, Faculty of Medicine, AGSM Building, University of NSW, Sydney NSW 2052 Australia. lf.low@unsw.edu.au

**BACKGROUND:** Costs and consumer preference have led to a shift from the long-term institutional care of aged older people to home and community based care. The aim of this review is to evaluate the outcomes of case managed, integrated or consumer directed home and community care services for older persons, including those with dementia.

**METHODS:** A systematic review was conducted of non-medical home and community care services for frail older persons. MEDLINE, PsycINFO, CINAHL, AgeLine, Scopus and PubMed were searched from 1994 to May 2009. Two researchers independently reviewed search results.

**RESULTS:** Thirty five papers were included in this review. Evidence from randomized controlled trials showed that case management improves function and appropriate use of medications, increases use of community services and reduces nursing home admission. Evidence, mostly from non-randomized trials, showed that integrated care increases service use; randomized trials reported that integrated care does not improve clinical outcomes. The lowest quality evidence was for consumer directed care which appears to increase satisfaction with care and community service use but has little effect on clinical outcomes. Studies were heterogeneous in methodology and results were not consistent.

**CONCLUSIONS:** The outcomes of each model of care differ and correspond to the model's focus. Combining key elements of all three models may maximize outcomes.

PMCID: PMC3112399 PMID: 21549010 [PubMed - in process]

**READING 10 – Influence of primary care models**

**Pineault R, Provost S, Hamel M, Couture A, Levesque JF. The influence of primary health care organizational models on patients' experience of care in different chronic disease situations. Chronic Dis Inj Can. 2011 Jun;31(3):109-20. PubMed PMID: 21733348.**

URL: <http://www.phac-aspc.gc.ca/publicat/cdic-mcbc/31-3/ar-05-eng.php> (free full text)

Pineault R, Provost S, Hamel M, Couture A, Levesque JF. Direction de santé publique de l'Agence de la santé et des services sociaux de Montréal, Montréal, Quebec, Canada. rpineaul@santepub-mtl.qc.ca

**OBJECTIVES:** To examine the extent to which experience of care varies across chronic diseases, and to analyze the relationship of primary health care (PHC) organizational models with the experience of care reported by patients in different chronic disease situations.

**METHODS:** We linked a population survey and a PHC organizational survey conducted in two regions of Quebec. We identified five groups of chronic diseases and contrasted these with a no-chronic-disease group.

**RESULTS:** Accessibility of care is low for all chronic conditions and shows little variation across diseases. The contact and the coordination-integrated models are the most accessible, whereas the single-provider model is the least. Process and outcome indices of care experience are much higher than accessibility for all conditions and vary across diseases, with the highest being for cardiovascular-risk-factors and the lowest for respiratory diseases (for people aged 44 and under). However, as we move from risk factors to more severe chronic conditions, the coordination-integrated and community models are more likely to generate better process of care, highlighting the greater potential of these two models to meet the needs of more severely chronically ill individuals within the Canadian health care system.

PMID: 21733348 [PubMed - in process]



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## **O R I G I N A L P A P E R**

- **Approach and Management of Acute Red Eyes in Family Practice in Singapore**

# APPROACH AND MANAGEMENT OF ACUTE RED EYES IN FAMILY PRACTICE IN SINGAPORE

Dr Philemon Huang, Adj Asst Prof (Dr) Tan Ngiap Chuan

SFP2011; 37(3): 54-59

## INTRODUCTION

Patients presenting with red eye(s) constitute one of the commonest encounters for eye-related conditions in general practice in Singapore. The Singapore Health survey in 2001 showed that conjunctivitis was ranked 10th amongst the most frequent conditions seen by primary practitioners<sup>1</sup>. It was reported that these cases account for 1 to 4 percent of all family practice consultations in the United States<sup>2</sup>. In a large scale survey of 8742 general practitioners (GPs) in the United Kingdom, 68% of them admitted that they had ‘some uncertainties about eyes’ and 10 percent affirmed the statement ‘eyes scare me stiff’<sup>3</sup>. The survey showed that less than 30% of GPs everted the eyelids of their patients with eye complaints, performed visual field/acuity testing or used fluorescein stain<sup>3</sup>. Little is known about the practice of primary care physicians (PCPs include both GPs and doctors working in public primary care centers) in managing common acute eye diseases in the local community.

Apart from conjunctivitis, there are other differential diagnoses to consider if patients present with red eyes to the PCP, some of which carry a potentially high risk of complications and morbidity. History and clinical examination remain as key steps in the diagnosis of “red eye”. Local primary care clinics are equipped with hand-held ophthalmoscope required for basic eye examination but the use of slit lamp or fluorescein strip is very limited. In view of the constraints, the challenges facing the PCP will be to derive at the most probable diagnosis promptly, so as to ensure that timely and appropriate therapy is instituted for rapid recovery and minimal complication. An evidence-based systematic approach will facilitate the PCP in managing common eye conditions.

This review paper attempts to answer the following practice questions:

1. What the medical terms used to describe the “red eye”?
2. How can the PCP differentiate the various causes of “red eye”?
3. What are the microbial causes of conjunctivitis?
4. What is the rationale for using topical eyedrops in treating conjunctivitis?
5. Are topical antibiotics necessary?

Three cases are used to illustrate the presentation of “red eye” to PCP in a local public primary care clinic.

### CASE 1

Madam PAH (picture 1) is a 42-year-old Chinese lady, who does not wear contact lens. She developed bilateral eye redness, itchiness and tearing over a single day. There was no blurring of vision, fever, headache or nausea and vomiting. Examination revealed conjunctivitis but both pupils were normal and reactive

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to light. Chemosis, corneal lesions or infiltrates and preauricular lymphadenopathy were absent. She was treated as for viral conjunctivitis and was prescribed topical chloramphenicol. Her symptoms resolved after 4 days of treatment.



Picture 1. Madam PAH's left and right eyes

### CASE 2

Mr AS is a 17-year-old Indian male with no medical history. He presented with bilateral eye redness, discomfort and sticky milky discharge over a period of two days (picture 2). He noted that his eyelids were ‘stuck together’ when he woke up in the morning. He is a contact lens user, who practices good lens washing hygiene. He does not wear his contact lens overnight, swimming or during baths. He wears contact lens daily, with an average of 10 hours each day. Examination showed that apart from conjunctivitis, pupils were normal, reactive to light without any chemosis, corneal lesions or infiltrates nor preauricular lymphadenopathy. He was treated as for bacterial conjunctivitis. He was prescribed topical chloramphenicol and ointment chlortetracycline and advised to refrain from wearing contact lens. His symptoms resolved after 7 days.



Picture 2. Mr AS, a contact lens wearer, had bilateral eye redness

### CASE 3

JT is a 6-year-old boy with allergic rhinitis. He presented with 1 day history of watery discharge, mild redness, itch and swelling of his right eye (picture 3). He had mild irritation of his left eye as well. There was no history of trauma nor blurring of vision. Examination showed reactive pupils and his right conjunctiva was pinkish in colour. He had periorbital swelling, the right more than left. Cornea was clear. He was treated as for allergic conjunctivitis. He was prescribed topical chloramphenicol and advised to return if unwell. His symptoms resolved the following day.



Picture 3. JT, a 6-year-old boy, had right more than left eye irritation of 1 day duration.

## HISTORY AND EXAMINATION

Table 1 shows the history and clinical features in conditions presenting as acute red eye(s) in the primary care setting.

**Table 1. History and Clinical examination of the Acute Red Eyes in the Primary Care Setting**

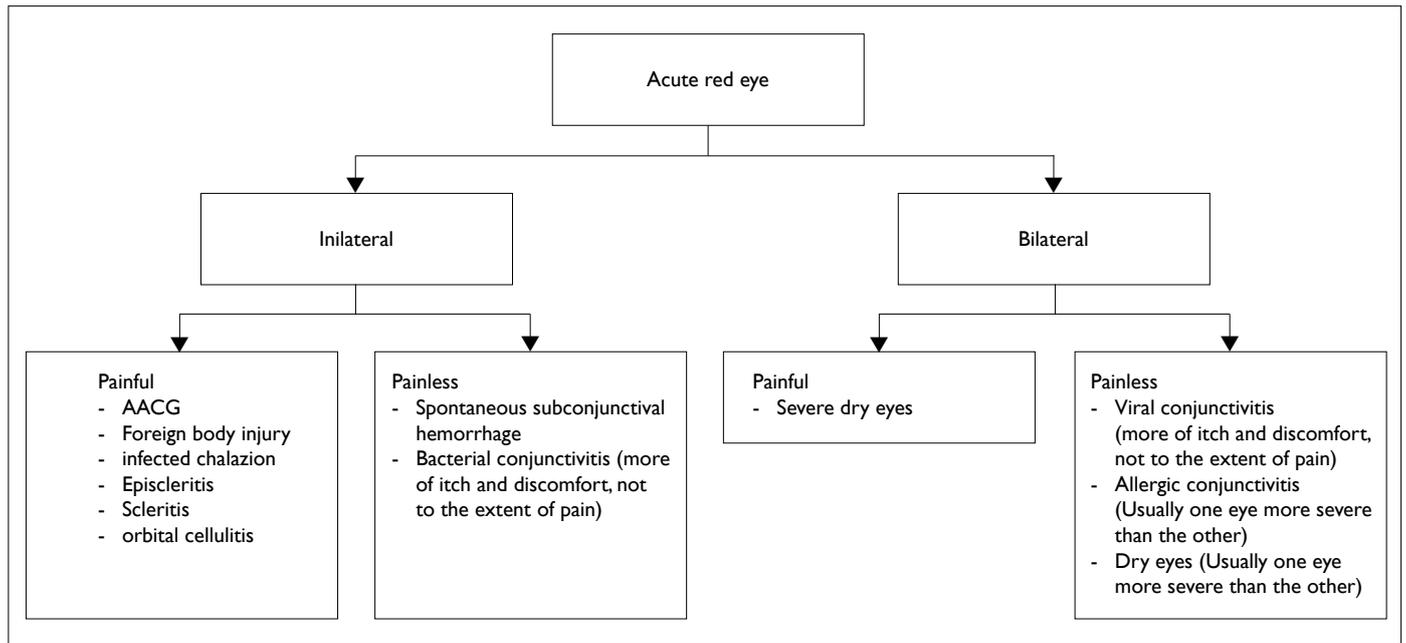
### (A) History

	Onset	Unilateral /bilateral	Pain	Itch	Discharge	Contact lens use	History of trauma	Others
Viral conjunctivitis	Acute	Unilateral then bilateral	min	Yes	watery	No	No	Photophobia
Bacterial conjunctivitis	Acute	Bilateral	min	Yes	mucopurulent	Yes	No	Eyelids stuck together
Allergic conjunctivitis	Acute	Bilateral	min	Yes	watery	No	No	History of atopy
Chalazion	Acute	Usually unilateral	yes	no	no	no	no	
Episcleritis/Scleritis	Insidious	Unilateral	min	no	no	no	no	History of autoimmune disorder
Blepharitis	Insidious	Can be either	yes	yes	no	no	No	
Acute angle closure glaucoma	Acute	Unilateral	yes	no	watery	no	no	Occurs in rainy weather
Keratitis	Acute	Unilateral	yes	no	no	yes	no	Blurring of vision if involves visual axis
Uveitis/Iritis	Acute	Unilateral	min	no	no	no	sometimes	Blurring of vision, photophobia
Chemical injury	Acute	Can be either	yes	no	no	no	sometimes	
Endophthalmitis	Acute	Usually unilateral	yes	no	mucopurulent	no	no	Blurring of vision
Foreign body	Acute	Usually unilateral	yes	no	no	no	yes	
Spontaneous subconjunctival hemorrhage	Acute	Unilateral	no	no	no	no	no	Use of antiplatelet/ anticoagulant, history of constipation, valsa maneuver
Dry eyes	Acute	Can be either	yes	yes	watery	no	no	Occasional photophobia, blurring of vision

### (B) Clinical Examination

	Visual acuity	Eyelid	Conjunctival	Corneal	Pupil	Systemic signs/others
Viral conjunctivitis	Can be decreased	Normal	Reddish	Usually clear	Reactive	Recent URTI
Bacterial conjunctivitis	Can be decreased	Normal	Reddish	Usually clear	Reactive	-
Allergic conjunctivitis	Can be decreased	Edema	Pinkish	Usually clear	Reactive	Can have atopy
Chalazion	Normal	Swelling	Usually normal	Clear	Reactive	-
Episcleritis/Scleritis	Normal	Normal	Tortuous vessels	Clear	Reactive	Can be associated with autoimmune disorder
Blepharitis	Normal	Poor lid condition	Usually normal	Clear	Reactive	-
Acute angle closure glaucoma	Decreased	Normal	Reddish	Hazy	Mid dilated	Unilateral headache, nausea and vomiting
Keratitis	Decreased if involved visual axis	Normal	Reddish	White infiltrates seen	Reactive	-
Uveitis/Iritis	Decreased	Normal	Reddish	Clear	Slow in reacting	Can be associated with autoimmune disorder
Chemical injury	Decreased	Normal	Reddish	Hazy	Reactive	-
Endophthalmitis	Decreased	Can have edema	Reddish	Hazy	Reactive	Fever Can be associated with sepsis
Foreign body	Decreased if involved visual axis	Normal	Reddish	FB seen on cornea	Reactive	-
Spontaneous subconjunctival hemorrhage	Normal	Normal	Fresh red bleeding if acute	Clear	Reactive	-
Dry eyes	Can be decreased		Usually normal	Clear	Reactive	-

Figure 1. Algorithm to Approach Acute Red Eyes



**DEFINITIONS AND DESCRIPTORS**

Chemosis: swelling of the conjunctiva

Fornix: The fornix of the conjunctivae refers to loose arching folds connecting the conjunctival membrane lining the inside of the eyelid with the conjunctival membrane covering the eyeball.

**PRESENTING SIGNS AND SYMPTOMS**

Presenting signs and symptoms are often related to the etiologies and the component(s) of the eye(s) affected. See Table 2.

**CONJUNCTIVITIS**

The most frequent cause of red eyes in primary care is conjunctivitis<sup>3</sup>. A randomized, double-blind, placebo-controlled trial conducted in United Kingdom reported that 1 in 8 school children had an episode of acute infective conjunctivitis annually<sup>4</sup>.

**What are the microbial causes of conjunctivitis?**

Based on microbial origin, acute conjunctivitis can be broadly classified into 4 main types—adenoviral, bacterial, fungal and chlamydial. See Table 3. Most of these conjunctivitis have overlapping presenting signs and thus it is not easy to confirm the diagnosis. Though conjunctival swab is suggested to be accurate in diagnosing and guiding treatment<sup>5</sup>, such a practice is uncommon in local primary care clinics due to the lack of immediate laboratory support and lag time in the culture results. Even in local tertiary hospitals, conjunctival swabs are not routinely done. However, each of these conditions does have its more prominent feature which can be teased out during history taking and examination of the eye.

In general, patients with adenoviral conjunctivitis often present as red eyes with watery discharge, gritty sensation and occasional preauricular lymphadenopathy. Viral respiratory infection often precedes the onset of eye symptoms. There are 51 subtypes of adenoviruses with serotype 8, 19 and 37 being isolated as the common pathogens. Hemorrhagic viral conjunctivitis may occur in severe infection during local outbreaks<sup>6,7</sup>.

Yellowish discharge was frequently noted in bacterial conjunctivitis. There is a correlation of bacterial conjunctivitis with sticky eyelid/eyelashes and purulent discharge as noted in recent well designed cohort studies<sup>8,9</sup>. Regression analysis revealed that this combination had a post- culture test probability of 96 percent. The common isolated pathogens are Streptococcus pneumonia, Haemophilus influenza, Staphylococcus aureus and Moraxella catarrhalis<sup>10</sup> and were mostly sensitive to topical chloramphenicol eyedrops.

Chlamydial conjunctivitis is caused by serotype D-K of Chlamydia trachomatis. Signs include mucopurulent discharge, large follicles most prominent in the inferior fornix and peripheral corneal infiltrates. A detailed sexual history is important as well as treatment of other possible sexually transmitted diseases is needed. If clinical suspicion of chlamydial conjunctivitis is high, it is prudent to refer for review by ophthalmologist.

**Allergic conjunctivitis**

Allergic conjunctivitis is usually seasonal and affects both eyes almost simultaneously. The patient has transient attacks of redness, lacrimation and severe itching with possible chemosis. Usually there is associated sneezing, nasal discharge or even history of atopy.

**MANAGEMENT**

Table 4 summarises the management of common acute red eye syndromes seen at primary care level.

**What is the rationale for using topical eyedrops in treating conjunctivitis?**

Topical antibiotics are frequently used even amid contrasting views by ophthalmologist and PCP. It is believed that viral conjunctivitis is usually self-limiting and does not require topical antibiotics. Even in acute bacterial conjunctivitis, the disease is self resolving for most cases. The general accepted belief was that they accelerate recovery, reduce the rate of getting complications and risk of secondary infection<sup>11</sup>. Previously, randomized double-blind studies have supported the efficacy and use of topical antibiotics reporting that by day 3 to 5 of its use, the bacterial pathogen was eradicated in as high as 71 percent of patients as compared to 19 percent in the placebo group<sup>12,13</sup>. In fact, many countries have recommended the use of topical chloramphenicol or aminoglycosides in the treatment of acute bacterial conjunctivitis<sup>14,15</sup>.

A meta-analysis by Sheikh et al<sup>16</sup> showed that, even though acute bacterial conjunctivitis is self-limiting, clinical remission was evident in 83% in the intervention group treated with topical antibiotic compared to 64% in the placebo group. In his subsequent Cochrane meta-analysis of antibiotics versus

placebo<sup>17</sup>, based on case note review of 1034 patients in 5 randomized trials, the results showed that the topical antibiotic use was most beneficial if the latter is started during day 2 to 5 after onset of symptoms. It led to faster clinical recovery (RR1.24, 95% CI 1.05 to 1.45). The numbers needed to treat was 5.

**Are topical antibiotics necessary?**

In 2005, a landmark randomized double-blind placebo-controlled trial<sup>4</sup> demonstrated that most patients with acute infective conjunctivitis seen in primary care will get better on their own without the need for topical antibiotics. By day 7, 86% and 83% of patients in both study and placebo group respectively had recovered. The results showed that topical antibiotics were not necessary in acute infective conjunctivitis.

With regards to the selection of topical antibiotic, chloramphenicol had been demonstrated to be associated with bone marrow aplasia resulting in death in a case report<sup>18</sup>. However, such risks were not high and given the relative high effectiveness and low cost of this medication, it was still being prescribed routinely. Nonetheless, topical chloramphenicol should be avoided in a patient with known history of marrow suppression.

Ultimately, the prescribing and dispensing of topical antibiotics for the treatment of acute infective conjunctivitis are influenced by multiple factors pertaining to the patient's, the caregivers' and the physician's belief, understanding of the disease and their concerns.

**Table 2. Aetiologies of the Acute Red Eye**

Diagnosis	Presenting signs and symptoms
Acute angle closure glaucoma	Unilateral headache (same side as the affected eye), unilateral eye pain, nausea/vomiting, blurred vision, mid-dilated pupils, hazy cornea, raised intraocular pressure
Keratitis	Eye pain, blurred vision, corneal opacities, fluorescein staining on cornea
Scleritis	Eye pain, visual acuity normal, sometimes localized bluish-tinge on sclera
Uveitis/Iritis	Eye pain, blurred vision, photophobia
Orbital cellulitis/endophthalmitis	Eye pain, blurred vision, fever, eye adnexa swelling, conjunctival chemosis, restricted eye movement, proptosis
Chemical injuries	Eye pain, conjunctival chemosis, fluorescein staining on cornea, hazy cornea (in severe cases)
Foreign body	Eye pain, blurred vision (if involving visual axis)
Episcleritis	Eye irritation, diffused prominent episcleral vessels
Blepharitis	Eye irritation, red eyelid margin, crusted eyelids, possible abnormal eyelash growth/alignment
Conjunctivitis	Eye irritation, no or minimal blurred vision, purulent discharge (bacterial), lacrimation, preauricular lymphadenopathy
Chalazion	Eye pain, localized eyelid lump (sometimes more obvious on everted eyelids)
Spontaneous subconjunctival hemorrhage	No pain, visual acuity normal, injected conjunctiva
Dry eyes	Eye irritation (often described as foreign body sensation), lacrimation

*Legend*

Red shade: refer for ophthalmologist review immediately

Yellow shade: Manage initially at primary care, can be given non-urgent ophthalmology referral

Green shade: Manage at primary care level, refer only if no improvement on subsequent follow-up

**Table 3. Etiological Types of Conjunctivitis**

Types of conjunctivitis	Signs and symptoms	History taking
Adenoviral conjunctivitis	Red eye, watery discharge, gritty sensation, preauricular lymphadenopathy	Recent viral respiratory infection
Bacterial conjunctivitis	Red eye, initial watery discharge subsequently become purulent discharge, eyelids stuck together	Contact lens history
Fungal conjunctivitis		
Chlamydial conjunctivitis	mucopurulent discharge, large follicles most prominent in the inferior fornix and peripheral corneal infiltrates	Possible high risk sexual behaviour

**Table 4. Management of Common Acute Red Eye Syndromes**

Eye condition	Management
Episcleritis	Topical non-steroidal anti-inflammatory drugs (NSAIDs) or steroids Topical lubricants
Blepharitis	Antibiotic ointments Lid hygiene/wash, warm compress
Conjunctivitis	(viral) topical antibiotics, lubricants (bacterial) topical antibiotics, lubricants (allergic) topical anti-inflammatory, lubricants (Chlamydia) if suspicion is high, refer to ophthalmologist immediately
Chalazion	Antibiotic ointments Lid hygiene/wash, warm compress
Spontaneous subconjunctival hemorrhage	Reassurance Lubricants and observe
Dry eyes	Lubricant eyedrop and ointment

A questionnaire survey<sup>19</sup> showed that parents and teachers believed that antibiotics are mandatory to stop transmission of the disease and that immediate treatment can prevent vision-damaging complications. This coupled with the desire to return the child back to school earlier in the event of 'missing out' on studies made them push for immediate antibiotic treatment. This can be easily seen in our local setting as well where the need to keep up with studies and the fear of disease transmission often resulted in the patients being prescribed a course of topical antibiotics for 2 weeks.

Another study concluded that the lack of knowledge regarding the self-limiting nature of acute infective conjunctivitis was the reason why patients presented to the PCP<sup>20</sup>. Perhaps with adequate education about the disease, patient will wait a few days to see if the disease improves or resolves before making a decision to visit the practitioner.

A newer approach of management entails delayed administration of topical antibiotics after the consultation. Patient could fill a prescription 3 days after the diagnosis of infective conjunctivitis was made. If the patient felt worsening of the symptom, the prescription would be filled and therapy would be initiated. The data collected for the interventional group was compared with 2 different control groups of (i) immediately commencing topical antibiotic treatment and (ii) no antibiotic use at all. The results showed that delayed topical antibiotic prescription is probably the most appropriate strategy for managing acute conjunctivitis in primary care<sup>21</sup>. It resulted in reduced antibiotic use by 50% and symptom control was similar to the group that started topical antibiotic treatment immediately. In addition this trial also showed that treatment with topical antibiotic reduced the duration of clinical disease by half to one-and-a-half days.

A review study<sup>22</sup> suggested that conjunctival swab culture has very high positive predictive value and could be used to guide treatment. However, such a method would not be feasible as most local primary care facilities are unable to process the cultures.

## CONCLUSIONS

- This review provided a summarized table to help general practitioners in diagnosing aetiology of acute red eye syndrome and which cases to refer to the ophthalmologist. It also illustrated the breadth of issues encountered in managing patients with acute infective conjunctivitis, the most common cause of acute red eye in primary care.
- Unilateral, painful, red eye associated with a decrease in visual acuity, a history of recent ocular injury or surgery require an urgent ophthalmologist consultation as these are red flags of more serious eye conditions.
- Viral conjunctivitis often present with watery discharge, gritty sensation and occasional preauricular lymphadenopathy. Bacterial conjunctivitis, on the other hand often presents with mucoid or purulent discharge, gluing together of eyelids.
- In the absence of red flags, a reasonable option would be to ask the patient to return in 2 or 3 days' time to review for remission. If not better by then, the eyes are examined to look for signs in support of a bacterial cause.

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