醫院管理局
HOSPITAL AUTHORITY

Hospital Authority

Strategic Service Framework for AMBULATORY CARE SERVICES

醫院管理局 日間醫療服務策略

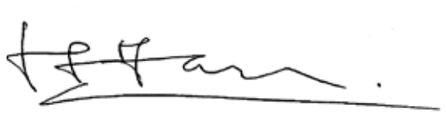
Contents

Foreword by Chairman

The Pandemic of Coronavirus Disease 2019 (COVID-19) has brought unprecedented challenges to the healthcare systems around the world. It has also provided opportunities for the Hospital Authority (HA), as the largest healthcare provider in Hong Kong, to critically examine our services for promoting long-term sustainability to protect the health and lives of our community.

In the face of Hong Kong's rapidly ageing population and growing burden of chronic diseases, there is an imminent need for HA to formulate sustainable measures to meet the ever-increasing demand for healthcare services. Developing ambulatory care services is one of the key directions under the priorities recommended by the HA Task Group on Sustainability. It is therefore timely for HA to promulgate the Strategic Service Framework for Ambulatory Care Services at this juncture. This strategic document will provide an overarching framework on HA's ambulatory care services in the coming years. It is envisaged that ambulatory care services, complementary to the current hospital-centric model of care, would provide sustainable care to our population and bring about benefits in various aspects, including avoiding risks associated with hospital admissions for patients; enhancing service scheduling for staff; and having the potential to reduce the number of inpatient days.

I would like to express my heartfelt gratitude to our colleagues, patient representatives and my fellow Board members for their enormous support and contributions in formulating the Strategic Service Framework for Ambulatory Care Services. Successful implementation of the Framework requires the collaborative effort across disciplines, specialties and hospitals in HA. With the commitment and dedication from all of us in HA, I am confident that we will continue to raise the standards and quality of our ambulatory care services to meet the healthcare needs of our patients.



Henry FAN Hung-ling

Chairman

Hospital Authority

Foreword by Chief Executive

The demand for HA's services is rising rapidly as a result of population growth and ageing, and an increasing prevalence of chronic diseases in both the middle-age group and the elderly population. Traditionally, Hong Kong's public healthcare services have a heavy reliance on hospital-based care. In the face of various constraints on top of the escalating healthcare demand, such an over-reliance on hospital services would not be sustainable in the long run. There is thus a need for HA to consider sustainable measures, including a change in service model to the ambulatory care services model, to cope with the challenges and demand ahead.

Over the years, HA has been providing ambulatory care services through various programme-based services such as geriatric day hospital services, palliative care day services; and procedure-based services such as haemodialysis, chemotherapy, day surgery. While we are proud of our dedicated staff and the achievements we have made, we appreciate there is still room for improvement (e.g. in terms of service organisation and service model) to augment the service and system infrastructure.

I am delighted to present the Strategic Service Framework for Ambulatory Care Services. The Framework will serve as a blueprint to guide and align our clinicians and executives in the development of HA's ambulatory care services in the coming years. By increasing the adoption of the ambulatory care services model, we anticipate it could reduce patients' stay in hospital for services and maintain independence in the community. Under this change from an over-reliance on inpatient care to an increased utilisation of non-inpatient care, our goal is to reduce avoidable admissions and therefore improve the health outcomes of our patients. With a clearer definition of our ambulatory care services, strengthened governance and service organisation, optimised key enablers and standardised measures for effective performance monitoring, we are optimistic that the ambulatory care services model would serve as a complementary model to hospital-centric care, for providing sustainable care to meet our service demand in the coming years.

Our sincere thanks go to all the staff and a wide range of stakeholders, including patient representatives and experts, who have contributed to developing the Framework. Successful implementation of the Framework will require a phased approach and the concerted efforts from all of us. We look forward to working with you all in the realisation of these strategies, which will benefit our patients, their families and the community as a whole.

Dr Tony KO

Chief Executive

Hospital Authority

Preface

The Strategic Service Framework for Ambulatory Care Services is an important document to guide the development of HA's ambulatory care services in the next five to 10 years, so as to address the service gaps through enhancing the system infrastructure and driving a change to the service model. It is developed through the collective effort from our stakeholders, including frontline professionals, cluster and Head Office executives, patient representatives and our Board members.

Under the Framework, efforts will be made to set out a clear definition of ambulatory care services and strengthen the governance and service organisation of our day services. With the aim to provide coordinated care to meet the patients' needs, there are unique roles and responsibilities at corporate and cluster levels in coordinating and developing day services for their respective specialties. Risk stratification will be performed during the patient journey to match the level of care to the patients' needs. We target to provide appropriate services to the right patients at the right place, and thereby reducing avoidable admissions and minimising the impact of care on patients' everyday lives. In parallel, optimisation of key enablers, such as information technology systems and resource allocation mechanism, will be highlighted in the Framework in relation to service development and implementation. Standardised measures will also be developed for effective monitoring of day services for continuous quality improvement.

We would like to express our heartfelt gratitude to all the stakeholders who have contributed to developing the Framework. In particular, we would like to thank the members of the Taskforce and Working Groups for their guidance and expert advice. We would also like to extend our appreciation to everyone who provided suggestions and feedback on the draft Framework. We look forward to your continuing support in implementing the strategies of the Framework in the years ahead.

Dr Libby LEE

Director

Strategy & Planning Division
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Dr K T TOM

Cluster Chief Executive

Kowloon East Cluster /
Hospital Chief Executive
United Christian Hospital

Executive Summary

Introduction

Ambulatory care services are healthcare services provided on a non-inpatient basis. There are benefits to providing healthcare on an ambulatory care basis to all stakeholders, including patients, staff, as well as the healthcare system. Service delivery via an ambulatory care services model has been used worldwide along various aspects of the patient journey, including Accident and Emergency (A&E) services, diagnostic services, surgical services, and rehabilitation services with encouraging results.

The Pandemic of Coronavirus Disease 2019 (COVID-19) has brought unique challenges and opportunities to the healthcare sector. Technology and digital solutions which have been discussed at length are adopted at an accelerated pace. The COVID-19 pandemic experience has transformed the mindset of people, from a preference for the traditional face-to-face approach in different industries (e.g. sales and purchase, teaching and tutoring) to a more digital approach. Similarly, a change in mindset has been observed in the healthcare sector. Patients refrain from visiting hospitals where possible and are open to receiving their care via a non-hospital-based approach. Patients and providers have both evolved from a preference for a hospital-centric model to a more ambulatory or community-based service model where possible.

In fact, the ambulatory care services model could serve as a complementary model to hospital-centric care, to provide sustainable care to meet our ever-increasing service demand resulting from an ageing population and the increasing chronic disease prevalence. In this regard, concerted efforts are required from our healthcare staff and executives from hospitals, clusters and the Hospital Authority (HA) Head Office, to work together towards achieving the following vision:

> ***"To provide appropriate and effective ambulatory healthcare services to patients in HA."***

Planning Process

Formulation of the Strategic Service Framework for Ambulatory Care Services commenced in January 2021. Under the policy direction and guidance from the HA Task Group on Sustainability, the Medical Services Development Committee (MSDC) and the Directors' Meeting, a Taskforce was established to oversee the formulation process. Working Groups were established to advise on the definition, governance, service organisation, service model, performance monitoring, as well as the key enablers of ambulatory care services. A highly participative and broad engagement approach was adopted, with involvement of frontline healthcare staff, representatives from relevant Coordinating Committees (COCs) and Central Committees (CCs), as well as HA executives.

The formulation process included conducting a literature review to gather information about overseas experience and developments, as well as a situation analysis of the local service landscape. A consultation exercise with relevant COC/CCs was conducted to identify the key issues and develop strategies. The findings were put forward to the Taskforce to inform formulation of the Framework. Regular reports were also made to the Directors' Meeting and MSDC for policy direction. Broader consultation on the draft Framework was conducted in November and December 2021. The responses and comments received were carefully considered and deliberated by the Taskforce. The refined Framework was subsequently submitted to the Directors' Meeting for endorsement, and then to MSDC for final approval.

Strategies for HA's Ambulatory Care Services

The Framework comprises six strategic directions for HA to improve its ambulatory care services, covering definition, governance, service organisation, service model, key enablers and performance monitoring. The strategic directions are outlined in Table 1.

Table 1. Strategic Service Framework for Ambulatory Care Services

Key Areas for Improvement	Strategic Directions	Strategies
Definition	1. Refine the definition of ambulatory care services in HA	1.1 To define ambulatory care services, including day services, outpatient services and A&E services for HA to align service provision and facilitate performance monitoring 1.2 To engage COC/CCs in patient selection and procedure matching for day services
Governance	2. Strengthen the governance and linkage of day services between corporate and clusters	2.1 To strengthen the roles of COC/CCs in the development of day services 2.2 To establish regular reporting on day services development in COC/CCs and Cluster Management Meetings
Service Organisation	3. Enhance service organisation in HA	3.1 To perform territory-based day services for appropriate healthcare services in designated ambulatory care settings 3.2 To implement hospital-based and cluster-based day services according to the role delineation established in clusters' Clinical Services Plans (CSPs)
Service Model	4. Develop care pathways for day services to reduce avoidable admissions	4.1 To stratify patients according to their risks by medical teams and/or stratification tools 4.2 To provide protocol-driven programme-based and function-based day services and support patients to stay healthy in the community
Enablers	5. Optimise key enablers to support service development and implementation	5.1 To promote the implementation of day services by optimising information technology (IT) systems 5.2 To facilitate the development of day services by refining the resource allocation mechanism
Performance Monitoring	6. Develop standardised measures for effective monitoring of the outcome of day services	6.1 To facilitate the development of corporate-wide standardised measures by enhancing existing admission and booking systems to provide clearer indication of patients intended for day services 6.2 To devise monitoring parameters for performance monitoring and future service planning

Under each strategic direction, strategies have been formulated with reference to the identified key issues or opportunities for improvement in HA's ambulatory care services.

Strategic Direction 1
Refine the Definition of Ambulatory Care Services in HA

Opportunities for Improvement

Historically, patients undergoing ambulatory care services have been defined and identified operationally, as patients who were not admitted via the A&E Departments, and who were discharged before 12 a.m. midnight on the same day of admission. This classification of ambulatory care services, by proxy, based on the timing of discharge may result in an inaccurate reflection of day service provision. A more appropriate approach to the definition, however, should be based on the intent of the healthcare services to be provided.

Strategies

- To define ambulatory care services, including day services, outpatient services and A&E services for HA to align service provision and facilitate performance monitoring. Refining the definition of ambulatory care services according to the intent of service provision in a healthcare facility will enable an accurate reflection of workload of our staff in providing day services.
- To engage COC/CCs in patient selection and procedure matching for day services, and to advise on the service composition, and inclusion of appropriate programmes and procedures. Factors such as patients' healthcare needs, the complexity of procedures, and the amount of time required for service provision should be taken into considerations.

Strategic Direction 2
Strengthen the Governance and Linkage of Day Services between Corporate and Clusters

Opportunities for Improvement

While relevant COC/CCs will advise on services development, inclusion of day services in HA in relevant specialties, local implementation and adoption of an ambulatory care services model in clusters are discussed in appropriate cluster-based platforms, such as Ambulatory Care Committees and Cluster Management Committees. However, there is no strong linkage between the corporate and cluster levels. Strengthening of the governance, between the corporate and cluster levels, will provide a structured platform for enhancing the coordination of ambulatory care services planning and implementation.

Strategies

- To strengthen the roles of COC/CCs in the development of day services. With the refined definition of ambulatory care services derived by intent of care, service model of day programmes and day procedures will be aligned across clusters in respective COC/CCs.
- To establish regular reporting on day services development in COC/CCs and cluster-based platforms in order to strengthen the linkage of day services between corporate and clusters.

Strategic Direction 3
Enhance Service Organisation in HA

Opportunities for Improvement

Clinical Services Plans of respective clusters with defined hospital role delineation help guide the development of ambulatory care services across different hospitals in the cluster. The service organisation and coordination of ambulatory care services can be enhanced by exploring the potential for territory-based service provision.

Strategies

- To perform territory-based day services for appropriate healthcare services in designated ambulatory care settings. Day services which are highly protocol-driven and of low complexity could be provided in territory-wide ambulatory care centre(s). Relevant COC/CCs should explore and advise on the appropriateness and design of these services.
- To implement hospital-based and cluster-based day services according to their respective role delineation established in clusters' CSPs.

Strategic Direction 4
Develop Care Pathways for Day Services to Reduce Avoidable Admissions

Opportunities for Improvement

The service delivery models in Hong Kong's public healthcare system have traditionally been very hospital-centric. Many relatively simple and straightforward procedures, treatments, or service programmes have been delivered in the inpatient setting, in spite of the low complexity and short duration. Shortening of the stay, where clinically appropriate, in an unfamiliar and often crowded hospital environment is beneficial to patients, particularly for frail, elderly patients prone to disorientation and de-conditioning. The ambulatory care services model should serve as a complementary model to hospital-centric care to provide sustainable care to meet our service demand.

Strategies

- To stratify patients, services and procedures according to risks by medical teams, utilising stratification tools as appropriate for day services and procedures as determined by COC/CCs. Healthier patients with relatively low risk profiles may be suitable for simple, protocol-driven procedures and services via an ambulatory care services model. Patients with higher risk profiles may be suitable for day services such as post-discharge ambulatory transitional support. This includes patient education, medication titration and rehabilitation, aimed to keep the patient healthy in the community and reduce the likelihood of repeated hospital admissions.
- To support patients to stay healthy in the community via protocol-driven, structured day programmes. An example of a programme-based ambulatory care services model, "Ambulatory Programme for Congestive Heart Failure Patients", will be highlighted in the Framework. The aim is to provide post-discharge transitional support for patients who have been identified upon discharge to have high risk for repeated heart failure, requiring repeated re-admissions for treatment. Illustrative examples of a function-based ambulatory care services model, "Diagnostic Imaging Services in Ambulatory Care Centres" and "Ambulatory Interventional Radiology Services", will also be highlighted in the Framework. The aim is to separate the emergency and elective patient flows for diagnostic imaging services and to reduce avoidable admissions for patients undergoing interventional radiological procedures of relatively low complexity.

Strategic Direction 5
Optimise Key Enablers to Support Service Development and Implementation

Opportunities for Improvement

Enablers, such as IT infrastructure, resource allocation mechanism, accessibility support, manpower support, facilities, and physical space, which augment clinical expertise and day services workflow, are important for enhancing ambulatory care services delivery.

Strategies

- To promote the implementation of day services by optimising IT systems to support the entire patient journey for day services. The enhanced IT systems should enable the identification and scheduling of suitable patients, support operations and clinical workflow, enhance coordination, communication and clinical documentation, and systematically provide accurate data for service planning and quality improvement.

- To facilitate the development of day services by refining the mechanism for resource allocation. In the existing resource allocation mechanism in HA, relatively clear parameters for manpower provision exist for opening of inpatient beds and operating theatre sessions. However, manpower provision parameters for setting up and providing new day services are less clear. It is proposed that resource allocation to day services should be enhanced at two levels:

  1. Baseline resource allocation for the setting up of day centres with the baseline staff mix and resources for the daily operation of general day centres.

  2. Additional resource allocation for services provided through additional day places per day bed or physical set-up. Day bed refers to the physical space requirement for day services. It is expected that the number of turnover for each physical set-up, be it a bed or recliner, will be different for different services. This turnover pattern of specific day services should be measured by a common indicator – day place, which reflects the capacity of day services to be provided. With the alignment of service models across hospitals in COC/CCs, endorsement from senior management will be sought for the required resources for these agreed service models to facilitate future resource allocation.

Strategic Direction 6
Develop Standardised Measures for Effective Monitoring of the Outcome of Day Services

Opportunities for Improvement

Currently, a proportion of ambulatory care services is provided in the inpatient setting in HA. In the absence of explicit indicators on whether the services provided to patients in inpatient wards are day services, direct identification of patients intended for day services may be difficult. This will compromise performance monitoring and quality improvement measures for ambulatory care services.

Strategies

- To facilitate the development of corporate-wide standardised measures by enhancing existing admission and booking systems to provide clearer indication of patients intended for day services.
- To devise monitoring parameters for performance monitoring and future service planning.

Implementation and Monitoring

Successful implementation of the Framework requires the concerted effort of various stakeholders. While the overall directions and strategies are laid out in this Framework, the operational details for the implementation will be worked out by relevant subject officers.

The implementation will be monitored at different levels, including the existing monitoring mechanism of annual plan exercise, progress review of the implementation plan for the Framework by relevant subject officers of the involved COC/CCs, and the development of HA-wide clinical indicators for performance monitoring.

Conclusion

Similar to the situation worldwide, HA is now experiencing a dramatic increase in the demand for healthcare services resulting from a growing, ageing population and the rising prevalence of chronic diseases. The current over-reliance on hospital-based model is unsustainable from the patient, workforce and financial perspectives. A change in service model to an ambulatory care services one should be encouraged to reduce avoidable admissions. As the blueprint for ambulatory care services in HA, this Framework sets out the directions for HA to work towards the provision of appropriate and effective ambulatory care services to the patients in HA.

Note: In view of the emergence of the COVID-19 epidemic in Hong Kong since early 2020, HA has adjusted its services in response to the pandemic along with tightening up of infection control measures. Hence, HA service statistics for year 2018/19 or before were used in this Framework to reflect the situation without the impact of COVID-19.

摘要

引言

日間醫療服務是指在醫療處所內以非住院模式為無須留院的病人所提供的醫療服務。此服務模式為不同持份者，包括病人、醫護人員，以及整個醫療系統帶來裨益。縱觀世界各地，日間醫療服務模式已在治理病人的過程中被廣泛應用，當中包括急症、診斷、手術和復康服務，而且卓有成效。

2019 冠狀病毒病的疫情為醫療行業帶來了前所未有的挑戰和機遇，加速世界推進已討論多年的數碼轉型的步伐。這次突如其來的新冠肺炎疫情亦深刻改變了人類的生活方式，促使不同行業（例如銷售和採購、教學和功課輔導）由傳統面對面溝通的模式趨向數碼化的新模式。我們在醫療領域中也同樣看得到類似的轉變。在疫情下，病人希望盡可能避免前往醫院，並逐漸對日間醫療服務模式持開放態度。在一般可行的情況下，病人和醫護人員亦由以往着重以住院為主的傳統服務模式，推進服務模式的轉變，與以日間醫療或社區護理為主的服務模式融合。

事實上，日間醫療服務新模式和以住院為主的傳統護理服務模式可以互相配合、相輔相成，我們希望透過可持續的模式提供醫療服務，滿足因人口老化及慢性疾病日趨普遍而增加的服務需求。為此，我們有賴各醫護人員以及醫院、聯網和醫院管理局（醫管局）總辦事處的行政人員共同努力，齊心協力實現以下願景：

『為醫管局的病人提供合適及有效的日間醫療服務。』

規劃過程

醫管局在 2021 年 1 月開展《日間醫療服務策略》（服務策略）的規劃工作。在醫管局「持續發展專責小組」、「醫療服務發展委員會」及「總監會議」的指導下，我們成立了專責小組，負責監督整個制訂過程。專責小組轄下設有工作小組，負責就日間醫療服務的定義、管治架構、服務模式、服務監察及相關基建和配套提供建議。我們群策群力，充分聽取前線醫護人員、相關統籌委員會及中央委員會的代表、以及醫管局行政人員的意見，來制訂服務策略。

我們在制訂本服務策略的過程中，除了透過文獻以了解相關的海外經驗和發展外，亦重點分析了香港的本地情況。我們與相關的統籌委員會及中央委員會進行磋商，找出醫管局所面對的主要挑戰，並制訂一系列的服務策略。專責小組根據意見擬定服務策略框架，定期向「總監會議」及「醫療服務發展委員會」匯報，以確立政策的發展方向。我們於 2021 年 11 月至 12 月就服務策略的初稿廣泛徵求意見，並將所收集到的意見交往專責小組作詳細分析和討論。修訂後的服務策略經「總監會議」審批後，獲「醫療服務發展委員會」審議通過。

日間醫療服務策略

本服務策略訂立了六大策略方向，分別就定義、管治架構、服務組織、服務模式、相關配套，以及服務監察各方面，提出改善醫管局日間醫療服務的方針，內容詳述如下：

表 1. 日間醫療服務策略框架

主要可改善的範疇	策略方向	策略
定義	1 確立醫管局日間醫療服務的範圍	1.1 確立日間醫療服務的範圍（包括日間、門診和急症服務），以確保服務的一致性和推進監察工作 1.2 提高統籌委員會和中央委員會就確立合適日間服務範圍的參與程度，以滿足病人的需要
管治架構	2 強化總辦事處和聯網之間的聯繫和日間服務的管理	2.1 鞏固統籌委員會及中央委員會就日間服務發展的角色 2.2 建立匯報機制，定期向統籌委員會、中央委員會及聯網管理委員會匯報日間服務的發展進度
服務組織	3 提升醫管局的日間服務安排	3.1 確認合適的醫療服務，在不同地區設立日間醫療中心，為病人提供複雜性相對較低的日間服務 3.2 根據聯網《臨床服務計劃》內明確的醫院角色定位，全面落實推動以醫院及聯網為本的日間服務
服務模式	4 制定日間服務的護理流程，減少不必要的住院需要	4.1 通過醫療團隊及 / 或評估工具為病人提供風險評估並進行分流 4.2 以服務性質及醫療程序為本，提供合適的日間服務，守護病人健康
相關配套	5 優化主要配套，促進服務的發展和推行	5.1 優化相關的電腦系統，有利推行日間服務 5.2 完善資源分配機制，促進日間服務發展
服務監察	6 釐訂標準化的服務指標，對日間服務進行有效監控	6.1 透過優化現有的入院和預約系統，推進醫管局制定標準化的日間服務指標，以明確識別擬接受日間服務的病人 6.2 為日後的監察工作及未來的服務規劃制定指標

我們就上述策略方向制訂了相應的策略，應對醫管局日間醫療服務方面所面對的挑戰。

策略方向一：確立醫管局日間醫療服務的範圍

可改善的範疇

病人以往由非急症室的途徑入院，並在入院當天午夜十二時前出院，都會在運作上被界定為日間服務。以這種方式來界定日間服務，可能會影響數據反映的準確性，因此，以醫療服務的意向來作界定會更為合適。

策略

- 確立日間醫療服務的範圍，當中包括日間、門診和急症服務。為更能如實反映同事實際工作量，我們將根據醫療服務的意向來釐定日間服務所涵蓋的範圍。
- 提高統籌委員會和中央委員會就確立合適的日間服務的參與度，以滿足病人需要提供合適的日間服務。委員會會考慮病人的醫療服務需求、醫療程序的複雜性，以及有關服務所需的時間等因素，就相關的日間服務計劃和程序作出建議。

策略方向二：強化總辦事處和聯網之間的聯繫和日間服務的管理

可改善的範疇

統籌委員會和中央委員會負責就相關的日間服務發展提出建議，而聯網的各個平台，例如日間服務委員會以及聯網管理委員會，則集中討論聯網內的服務細節。然而，目前總辦事處和聯網之間的連繫有待進一步鞏固。加強總辦事處和聯網之間的管治和聯繫，能構建一個系統化的平台，將有助統籌協調日間服務的規劃，確保措施得以有效落實。

策略

- 鞏固統籌委員會及中央委員會就日間服務發展的角色。統籌委員會及中央委員會將會根據以服務意向為本的日間服務定義，為合適的計劃和程序制定統一的服務模式。
- 建立匯報機制，定期向統籌委員會、中央委員會及聯網管理委員會匯報日間服務的發展進度，以加強總辦事處和聯網之間的聯繫。

策略方向三：
提升醫管局的日間服務安排

可改善的範疇

各聯網的《臨床服務計劃》闡述了各醫院的角色定位，為聯網內的日間服務發展提供指引，並探討不同地區服務發展的機會，設立日間醫療中心，為病人提供複雜性相對較低的日間服務，加強日間服務的組織和協調。

策略

- 在不同地區設立日間醫療中心，為病人提供複雜性相對較低的日間服務。地區性的日間醫療中心會以服務性質及醫療程序為本，提供合適的日間服務。統籌委員會及中央委員會應就相關服務的適切性及服務設計提出建議。
- 根據聯網《臨床服務計劃》內明確的醫院角色定位，全面落實推動以醫院和聯網為本的日間服務。

策略方向四：
制定日間服務的護理流程，減少不必要的住院需要

可改善的範疇

多年來，香港公共醫療系統的服務模式是以住院為主。即使是較簡單和需時較短的醫療程序、治療或服務計劃，都會透過住院形式提供服務。若情況許可，縮短住院時間，能減少體弱的年長病人在陌生的醫院環境逗留的時間，有助減少茫然失措的情況。日間醫療服務模式和以住院為主的傳統護理服務模式可以相輔相成，務求以可持續的模式提供醫療服務以滿足服務需求。

策略

- 統籌委員會及中央委員會應就適合不同病症及服務的風險評估工具提出建議，以便醫療團隊為病人進行風險分層。風險較低的病人可接受相對簡單的日間醫療程序和服務；部份風險相對較高的病人則可能需要以日間模式所提供的出院後過渡性支援服務。此項服務可提供病人醫療資訊、藥物調整服務及復康服務等，旨在協助病人保持健康並減少再次入院。
- 通過更有系統性的日間服務計劃，守護病人的健康。本服務策略將以「心臟衰竭日間醫療計劃」為例，勾劃出日間服務應有的服務模式。此計劃的目的是為出院時被評定為可能因心臟衰竭復發而需再度入院接受治療的病人提供出院後的過渡性支援服務。服務策略中亦會以「日間醫療中心放射診斷服務」和「日間介入性放射服務」作例子闡明以醫療程序為本的日間服務。此服務的目的是透過緊急和非緊急病人分流，使接受相對簡單的放射診斷服務病人減少到醫院，並讓接受較簡單的介入放射治療的病人減少不必要的入院。

策略方向五：
優化主要配套，促進服務的發展和推行

可改善的範疇

適當的配套對提升日間服務尤其重要，當中包括資訊科技系統、資源分配機制、人力資源、相關設施和空間上的配套等，均有助提高臨床專業的知識和理順日間服務的工作流程，從而加大對病人的支援力度，保障病人獲得適時的醫療服務。

策略

- 優化資訊科技系統以提升整個日間服務流程，從而促進日間服務的推行。完善的資訊系統有利於識別合適的病人、安排預約、支援運作和進行臨床工作；以及改善協調、加強溝通和優化醫療記錄程序，及更準確地提供有關服務規劃和質素改善方面的數據。

- 完善資源分配機制，促進日間服務的發展。在目前的資源分配機制中，醫管局在增加病床和手術室的人手供應已有相對明確的指引。然而，就發展新的日間服務所需的人手安排則缺乏清晰的標準。現建議在兩個層面上完善日間服務的資源分配機制：

  1. 為設立日間醫療中心制定資源分配基準，就中心日常運作所需的基本人手和資源提供明確指引。

  2. 為每個額外日間服務名額提供所需的資源。「日間床位」是指提供日間服務所需的設施空間。不論是床位或是躺椅，每個設施的流動性會因應提供不同的服務而有所不同。日間服務量應以劃一的指標 — 「日間服務名額」來量度，以反映其服務量。統籌委員會和中央委員會應就不同的日間服務統一各個醫院的服務模式，訂立有關服務模式所需要的資源配套，尋求管理層審批，以促進未來的資源分配。

策略方向六：
釐訂標準化的服務指標，對日間服務進行有效監控

可改善的範疇

目前，醫管局有一部分的日間服務是以住院的模式進行。醫管局現時並無明確的指標分辨在住院病房內接受日間服務的病人。如缺乏精確的指標，日間服務的監察和質素改善措施將未能發揮最大的效用。

策略

- 透過優化現有的入院和預約系統，推進醫管局制定標準化的日間服務指標，以明確識別擬接受日間服務的病人。

- 為日後的監察工作及未來的服務規劃制定指標。

推行和監察

要成功推動本服務策略的方向發展，將有賴各持份者的共同努力。

我們會在不同的層面，包括透過現有的周年工作計劃監察機制，相關的統籌委員會及中央委員會檢視項目的落實進度，以及制訂標準化的主要表現指標，以監察服務策略的實施進度和成效。

總結

與世界各地的醫療機構一樣，醫管局正面對因人口增長和老化，以及慢性疾病日趨普遍而與日俱增的服務需求。現時過度依賴以住院為主的服務模式，無論在病人角度、人手情況和財政方面均難以滿足市民對公營醫療服務殷切的需求。我們必須改善服務模式，減少不必要的住院。本服務策略作為日間醫療服務的發展藍圖，為未來規劃發展方向，實現為醫管局的病人提供合適及有效的日間醫療服務。

注：鑑於香港自 2020 年年初開始出現 2019 冠狀病毒病疫情，醫管局已加強感染控制措施，亦因應疫情調整服務。因此，本框架使用了 2018/19 年或之前的服務統計數據以反映沒受疫情影響的情況。

Part 1

Setting the Scene

Introduction

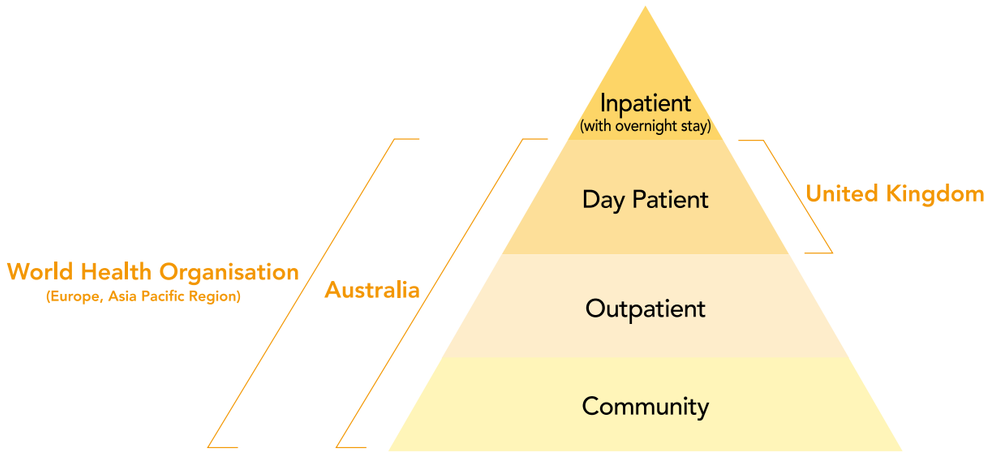
Setting the Scene for the Development of the Strategic Service Framework for Ambulatory Care Services

What is Ambulatory Care?

Ambulatory care services are healthcare services provided in a non-inpatient basis. According to the World Health Organisation, ambulatory care is defined as "health service provided to patients who are not confined to an institutional bed as inpatients during the time the services are rendered"[1,2]. Services provided in a non-inpatient basis can range from preventative and primary care, through to specialist services and tertiary-level services. The inclusion of emergency healthcare services and community-based care, such as outreach services as ambulatory care services is variable in different countries[3,4] (Figure 1).

1 World Health Organisation (2016). Assessing Health Services Delivery Performance with Hospitalisations for Ambulatory Care Sensitive Conditions.
2 World Health Organisation (2016). Health Systems in Transition: Template for Authors 2016.
3 National Health Service (2018). Quality, Service Improvement and Redesign Tools: Same Day Emergency Care (Ambulatory Emergency Care).
4 Western Australian Health (2007). Ambulatory and Community-based Care: A Framework for Non-inpatient Care.

Figure 1. Scope of Ambulatory Care Services in Different Places



Ambulatory care has demonstrated benefits in the various aspects, including:

From the patients' perspective:

- The avoidance of inpatient admissions and the reduction of the potential length of stay for services provided via an ambulatory care services model in place of the traditional hospital-based model, potentially reduces the complications arising from prolonged hospital stay including hospital-acquired infection.
- Shortening of the stay in the unfamiliar and often overcrowded hospital environment is potentially beneficial to frail, elderly patients who may be prone to disorientation and de-conditioning[5,6].
- Maintaining patients' independence in the community, within the family and social networks of the patients, is potentially conducive to staying healthy in the community as long as possible.

5 Salina Juma et al. (2016). Clinical Frailty Scale in an Acute Medicine Unit: A Simple Tool that Predicts Length of Stay.
6 Donna M Fick et al. (2014). Delirium Superimposed on Dementia is Associated with Prolonged Length of Stay and Poor Outcomes in Hospitalised Older Adults.

From the staff's perspectives:

- Healthcare services provided via the ambulatory care services model, aside from emergency services, are generally elective structured day programmes or procedures. The elective planning and scheduling of healthcare services are generally welcomed by staff[7,8].
- In organisations where arrangements can be made, scheduled ambulatory care services can be provided in regular working hours, which have been shown to improve the physical and mental health of staff[9]. Reduction in shift work has been shown to reduce the risk of having cardiovascular disease, gastrointestinal disturbance, psychological disorders, such as anxiety and depression.
- The ambulatory care services model could serve as a complementary model to hospital-centric care to provide sustainable care in the attempt to meet our service demand – the worldwide ageing population and the increasing chronic diseases prevalence have contributed to the significant increase in healthcare service demand. In parallel to the other measures to keep the general population healthy, an effective and efficient healthcare delivery model will assist the healthcare system in keeping up with the escalating demand.

Ambulatory Care – The Global Context

Globally, there is a rapid growth in the demand for healthcare services as a result of ageing population and the increase in chronic diseases prevalence. According to the Organisation for Economic Co-operation and Development (OECD)[10], approximately a third of the population aged 15 to 64 in 2019 suffer from two or more chronic medical conditions, which increases to 60% for those aged 65 or above. Meanwhile, in Asia-Pacific countries, the proportion of the population aged over 65 and 80 will more than double between 2020 to 2050, with faster growth projected in middle- and low- income countries[11]. It is recognised that in order to meet the resultant increase in healthcare demand, healthcare services supply must be provided in a sustainable manner. It is important to determine the right mix of inpatient and non-inpatient services. Studies have shown that with appropriate interventions focused at different stages along the patient journey is also important. Key elements include identification of patients at risk of emergency admissions or repeated, unplanned inpatient admissions, and providing targeted multi-disciplinary programmes aiming to improve self-care, appropriate use of tele-health and closer integration of primary and secondary care[12,13].

Ambulatory Emergency Services

In the United Kingdom (UK), emergency admissions account for 65% of hospital bed days[14]. The National Health Service (NHS) aimed to boost "out-of-hospital" care and reform hospital emergency care to provide a new service model for the 21st century in the NHS Long Term Plan[15].

7 World Health Organisation (2007). Policy Brief: Day Surgery: Making it Happen.
8 Annabel Matheson et al. (2014). The impact of Shiftwork on Health: A Literature Review.
9 Eldevik, M. F. et al. (2013). Insomnia, Excessive Sleepiness, Excessive Fatigue, Anxiety, Depression and Shift Work Disorder in Nurses Having Less than 11 Hours in-between Shifts.
10 Organisation for Economic Co-operation and Development (2019). Health at a Glance 2019: OECD Indicators.
11 Organisation for Economic Co-operation and Development / World Health Organisation (2020). Health at a Glance: Asia/Pacific 2020: Measuring Progress towards Universal Health Coverage.
12 The King's Fund (2010). Avoiding Hospital Admissions: What Does the Research Evidence Say?
13 Sarkies, M. et al. (2020). Avoiding Unnecessary Hospitalisation for Patients with Chronic Conditions: A Systematic Review of Implementation Determinants for Hospital Avoidance Programmes. Implementation Sci; 15, 91.
14 The King's Fund (2010). Avoiding Hospital Admissions: What Does the Research Evidence Say?
15 National Health Service (2019). The NHS Long Term Plan.

The basic principle underlying ambulatory emergency care and emergency day care is to manage a major proportion of emergency inpatients safely on the same day without admission[16]. Patients are managed in a timely and appropriately manner with rapid access to diagnostics and robust clinical assessment. Same day emergency care provides the opportunity to better manage patient flow, improve patient experience and reduce acute hospital admissions.

Ambulatory Diagnostic Services

In the UK, demand for almost all aspects of diagnostics, including computer tomography (CT) scan, magnetic resonance imaging (MRI), positron emission tomography CT scan, and ultrasound, have been rising rapidly (increase of 4% to 18%) over the past five years or more[17]. Such increases were driven by increases in hospital attendances, increases in direct requests for investigations from primary care and expansion of indications for existing technologies. Aside from out-sourcing of imaging (including reporting) and endoscopy services, the NHS has recommended separation of the emergency and elective diagnostic workflow wherever possible to improve convenience to patients and to relieve pressure in acute hospitals where elective diagnostic services have traditionally been provided[18]. Separation of the acute and elective diagnostic workflow can potentially improve the workflow and efficiency of both the acute and elective services. This would involve establishing community diagnostic hubs to provide ambulatory elective diagnostic centres for cancer, cardiac, respiratory and other conditions.

Ambulatory Surgery

In the past few decades, the number of surgical procedures carried out on a same-day basis has markedly increased in OECD countries[19]. Medical advances, in particular the introduction of less invasive surgical interventions and better anaesthetics have contributed to such enhancements. Cataract surgeries and tonsillectomies are good examples of high-volume surgical procedures that are now mainly carried out on a same-day basis in many OECD countries. In the United States, ambulatory surgical centres are examples of decentralised and community-based surgical service providers, that can be more adaptable to the local needs[20]. Studies have shown that appropriate surgical procedures can be performed safely in selected patients as day procedures[21,22,23].

Global Challenges and Opportunities Brought about by the Pandemic of Coronavirus Disease 2019 (COVID-19)

The COVID-19 pandemic has brought unique challenges and opportunities to the healthcare sector. The pandemic has in particular accelerated the digital transformation in many industries, including healthcare. These transformations have been underway for many years. In response to the pandemic, healthcare organisations have accelerated the adoption of digital solutions and advanced technology tools.

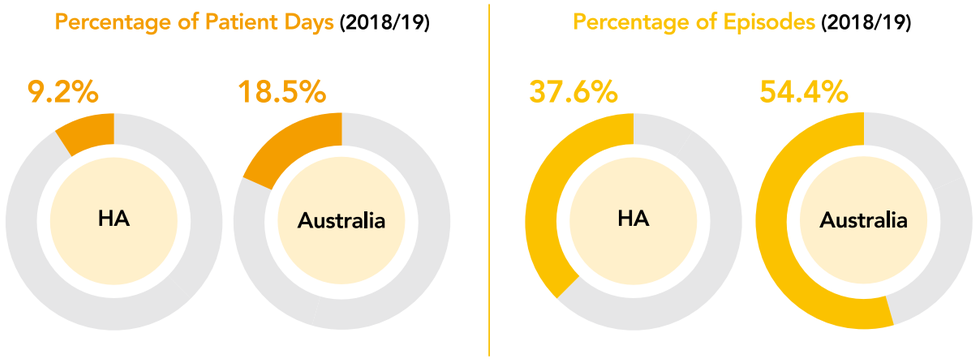
16 National Health Service Institute for Innovation and Improvement (2010). How to Implement Ambulatory Emergency Care (Emergency Day Care).
17 National Health Service (2020). Diagnostics Recovery and Renewal.
18 National Health Service Institute for Innovation and Improvement (2010). How to Implement Ambulatory Emergency Care (Emergency Day Care).
19 Organisation for Economic Co-operation and Development (2019). Health at a Glance 2019: OECD Indicators.
20 Ambulatory Surgery Centre Association (2020). Reducing Medicare Costs by Migrating Volume from Hospital Outpatient Departments to Ambulatory Surgery Centres.
21 Tang T et al. (2015). Day Surgery Versus Overnight Stay Laparoscopic Cholecystectomy: A Systematic Review and Meta-analysis; Digestive and Liver Disease; 47, 556–561.
22 Gao M et al. (2020). Day Care Surgery Versus Inpatient Percutaneous Nephrolithotomy: A Systematic Review and Meta-analysis; International Journal of Surgery; 81, 132-139.
23 Lawrence, D. et al. (2015). Day Care Versus Inpatient Surgery for Age-related Cataract. The Cochrane Database of Systematic Reviews.

During the pandemic, patients requiring elective healthcare services such as imaging, elective endoscopy and surgery have often been "reluctant" to visit hospitals which were designed to provide all kinds of both acute or elective services. In the wake of the pandemic, the importance of separating acute and elective workflows for patients undergoing procedures such as endoscopy, imaging and phlebotomy wherever possible have been emphasised. Furthermore, adoption of other healthcare modalities, such as tele-medicine has been greatly accelerated. With the mindset change and service adjustments during the pandemic, it was hoped that the acceptance of ambulatory care services by the general public would be increased.

Ambulatory Care – Hong Kong

In the past years in Hong Kong, healthcare services are provided both in the public and the private sectors. While much of the hospital services are provided in the public sector, most of the general outpatient and ambulatory care services are provided in the private sector, with 37% and 31% of the private health expenditure incurring at providers of ambulatory healthcare and hospitals respectively in 2019/20[24]. Over the years, the Hospital Authority (HA) has also been embarking on increasing the provision of ambulatory care services. Policy directions for provision of ambulatory care services have been set in the HA Review 2015, the HA Strategic Plan 2012-2017, 2017-2022 and 2022-2027. Our staff have been striving to provide ambulatory care services for selected surgical procedures, chemotherapy, and haemodialysis. However, the day inpatient share in HA as a percentage of patient days and percentage of patient episodes are 9.2%[25] and 37.6%[26] respectively in 2018/19 for general specialties[27], remains lower than the day patient share overseas, such as Australia, which is 18.5%[28] and 54.4%[29] respectively for the corresponding period[30] (Figure 2). HA will strive to further facilitate the implementation of the ambulatory care services model to complement the traditional hospital-centric model of care to cope with the challenges and demand ahead.

Figure 2. Day Inpatient Share in HA and Day Patient Share in Australia



24 Government of the Hong Kong Special Administrative Region (2020). Estimates of Health Expenditure: 1989/90 – 2019/20. Available at: https://www.fhb.gov.hk/statistics/en/dha/dha_summary_report.htm.
25 Patient days refer to sum of inpatient patient days and day inpatient discharges and deaths.
26 Patient episodes refer to inpatient and day inpatient discharges and deaths.
27 General specialties refer to specialties other than psychiatry, infirmary and mentally handicapped specialties.
28 The percentage calculated as same-day separations divided by patient days.
29 The percentage calculated as same-day separations divided by total episodes (same-day and overnight separations).
30 Australian Institute of Health and Welfare. Available at: https://www.aihw.gov.au/reports-data/myhospitals/content/data-downloads.

Vision and Scope

What We Aspire and What the Framework is about

In formulating this Framework, our goal is to improve the health of our patients by driving change in the healthcare service model from an over-reliance on inpatient care to increasing utilisation of non-inpatient care via increasing the adoption of the ambulatory care services model. We believe that HA will provide sustainable quality services to our patients at the most suitable healthcare setting. With these principles in mind, HA sets out the following vision for the ambulatory care services.

Vision for HA's Ambulatory Care Services

The vision for HA's ambulatory care services is **"To provide appropriate and effective ambulatory healthcare services to patients in HA"**.

Scope of the Framework

This Framework sets out the strategic directions to guide the planning and development of the HA's ambulatory care services model and corresponding system infrastructure requirements for the coming five to 10 years. It aims to address the existing and anticipated challenges, and to improve the service quality and sustainability through the refinement of ambulatory care services in HA. Although specific operational details for implementation are beyond the scope of this Framework, it provides an overarching framework for HA's clinicians and executives to align their initiatives on the development of ambulatory care services.

Despite the variation in definitions adopted across various organisations worldwide, ambulatory care services generally refer to the healthcare services provided outside inpatient settings. Patients utilising ambulatory care services are primarily expected to be discharged on the same day. In HA, the following ambulatory care services are included in the Government's Controlling Officer's Report (COR):

- Accident and Emergency (A&E) services
- Specialist outpatient clinic (SOPC) services
- Primary care services
- Day hospital services (geriatric, psychiatric, rehabilitation and palliative care services)
- Day inpatient services

As established governance overseeing the development of A&E services, SOPC services and primary care services are already in existence, the focus of this Framework will be on day services, which encompasses day inpatient services, day hospital services and structured day programmes. This Framework will cover the governance, service organisation, key enablers and performance monitoring of the ambulatory care services in HA. It will also illustrate service models for programme-based and function-based care.

Planning Process

How We Developed the Strategic Service Framework for Ambulatory Care Services

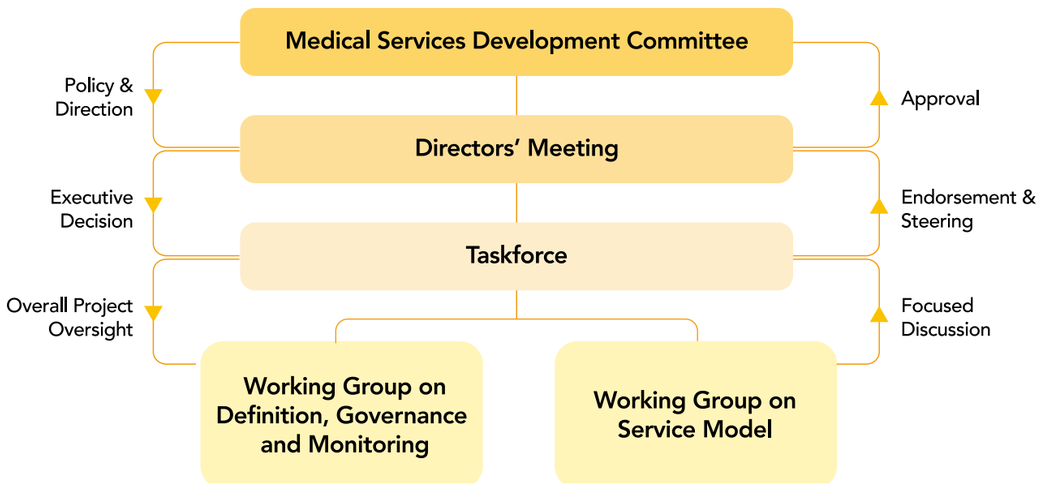
Project Governance

Under the policy directions and guidance of the HA Task Group on Sustainability, chaired by the HA Chairman, the Medical Services Development Committee (MSDC) and the Directors' Meeting, a designated Taskforce was set up to oversee the development of the Framework. The Taskforce was co-chaired by the Director of Strategy and Planning Division from HA Head Office and the Cluster Chief Executive of Kowloon East Cluster. The terms of reference and membership of the Taskforce are set out in Appendix 1.

Under the Taskforce, two Working Groups were formed to develop ambulatory care services in HA (Appendices 2-3). The first Working Group advised on the definition, governance, performance monitoring, as well as the key enablers of ambulatory care services. The second Working Group formulated illustrative service models for guiding future ambulatory care services delivery. All findings and recommendations from both Working Groups were reviewed and considered by the Taskforce.

A project team from the Strategy and Planning Division provided the executive support for the development of the Framework. The project governance structure is illustrated in Figure 3.

Figure 3. Project Governance Structure



Formulation Process

The development of the Framework commenced in early 2021. The process consisted of review of international practice and existing service provision of ambulatory care services, engagement of key stakeholders, formulation and prioritisation of strategies, consultation and approval of the Framework. This Framework was developed through a broad engagement approach with the active participation of clinical staff, cluster management, HA Head Office executives, and patient groups.

Literature review was conducted on the international service models and best practice of ambulatory care services. To review the current provision of ambulatory care services in HA, situational analyses were conducted to identify potential areas for improvement to enhance ambulatory care services in HA.

Input from different stakeholders are important to the formulation process of the Framework. Regular briefings to the relevant Coordinating Committees (COCs), Central Committees (CCs), the Patient Advisory Committee and other relevant Committees were organised to seek their advice on the proposed ideas. Details on the Committees involved are outlined in Appendix 4. All findings and recommendations were put forward to the Taskforce throughout this process. Project progress was also regularly updated to senior management including the HA Task Group on Sustainability, MSDC and the Directors' Meeting. With advice from different stakeholders and the policy directions from HA Board and management, this Framework was a collaborative effort striving for a sustainable healthcare delivery model by adopting ambulatory care services.

The draft Framework was made available to key stakeholders in November and December 2021 to solicit input and feedback. These included HA Head Office and cluster management, frontline clinical staff, COC/CCs, the Patient Advisory Committee and other relevant Committees. Their input was carefully considered and deliberated by the Taskforce for inclusion in the Framework. The final Framework was submitted to the Directors' Meeting for endorsement, followed by MSDC for final approval.

Part 2

Ambulatory Care Services and Strategies

Overview of Ambulatory Care Services in HA

What We Are Doing Now

Ambulatory Care Services in Hong Kong and in HA

The demand for HA's services is increasing rapidly as a result of population growth and ageing, and as a result of increasing prevalence of chronic diseases in both the middle-age group (aged 40 to 64) and in the elderly population.

Based on the latest population projections by the Census and Statistics Department, the population of Hong Kong is projected to increase from 7.51M in 2019 to 8.06M in 2036[31]. The increase is attributed to the projected growth in the elderly population (aged 65 years or above) from 1.32M in 2019 to 2.41M in 2036[32] (Figure 4). The growing elderly population places a significant pressure on the healthcare system as they generally require more healthcare services, both in terms of volume and complexity (Figure 5).

Figure 4. Projected Population Growth from 2019 to 2036

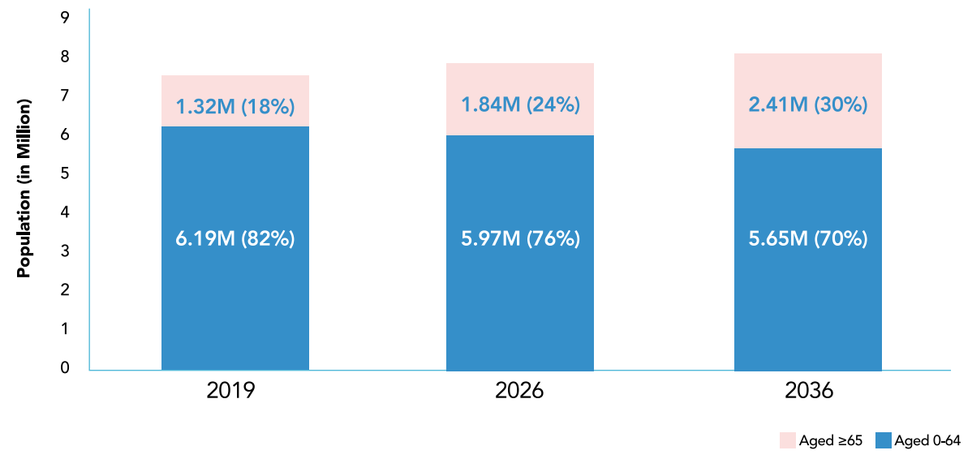
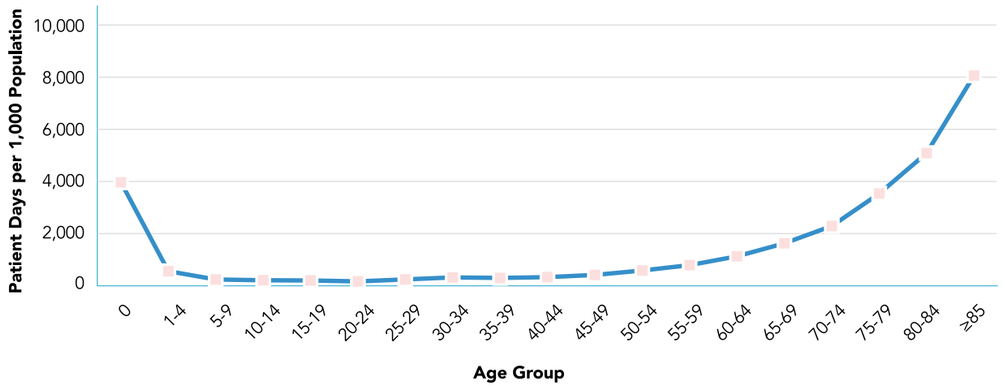


Figure 5. Per Capita Hospital Utilisation Rate[33] by Age Group in 2019



There is also rising chronic illnesses prevalence, not only in the elderly population (aged 65 or above) but also increasingly in the middle-age population (aged 40 to 64) as well (Table 2). It is estimated that more than 1.76M patients treated with at least one of the 25 pre-defined chronic diseases[34] in HA hospitals in 2019. The average annual growth rate of the population

31 Census and Statistics Department, Government of the Hong Kong Special Adminstrative Region (HKSAR).

32 Census and Statistics Department, Government of the Hong Kong Special Adminstrative Region (HKSAR).

33 Figures in terms of inpatient patient days and day inpatient discharges and deaths per 1,000 population under acute and extended care. For age 0, it refers to inpatient patient days and day inpatient discharges and deaths per 1,000 registered births under acute and extended care.

34 Refer to 25 common chronic diseases: diabetes mellitus, hypertension, hyperlipidemia, coronary heart disease, stroke, chronic obstructive pulmonary disease, chronic heart failure, chronic kidney disease (stage 3A-5), glaucoma, osteoporosis (approximated by hip fracture), hepatitis B, depression, dementia, Parkinsonism and cancers of the colorectal region, breast, lung, liver, prostate, cervix, corpus, ovary, nasopharynx, stomach and Non-Hodgkin lymphoma.

in Hong Kong (all ages) from 2010 to 2019 is 0.7% as compared to that of HA's patients with chronic diseases (all ages) at 4.4%. The average annual population growth rate in the middle-age group and in the elderly are 0.8% and 4.1% respectively, while the corresponding average annual growth rate of HA's patients with chronic diseases are 4.1% and 5.0% respectively. This suggests that the rate of growth of patients with chronic diseases is outgrowing population growth. Chronic disease patients, particularly those with co-morbidities, tend to utilise more healthcare services compared to the general population. Based on these observations, there is an imminent need for HA to consider sustainable measures, such as alternative service models to the traditional hospital-centric model of care to cope with the challenges and demand ahead.

Table 2. The Average Annual Growth Rate of HA's Patients with Chronic Diseases between 2010 and 2019

	HA's Patients with Chronic Diseases	Hong Kong Population
All Ages	4.4%	0.7%
Aged 40 to 64	4.1%	0.8%
Aged 65+	5.0%	4.1%

HA has been providing ambulatory care services over the years. Ambulatory care has been the priority area for development in the HA Review 2015, and also the HA Strategic Plan 2012-2017, 2017-2022 and 2022-2027. Examples of ambulatory care services provision in HA include programme-based services such as geriatric day hospital (GDH) services, palliative care day services, and procedure-based services such as haemodialysis, chemotherapy, day surgery.

Overall, despite our effort to embark on ambulatory care services, HA's services remain heavily skewed towards inpatient care. If the reliance on inpatient care continues, an ever-increasing number of hospital beds would be required to meet the service demand, which is unsustainable in the long term. It is projected that our patient days for acute and extended care beds will increase from 7.9M in 2021 to a range of 9.3M to 9.5M in 2026. This equates to approximately 1.5M additional bed days, which is the equivalent to an addition of around 920 beds every year for the next five years. Assuming that a certain portion of elective admissions in hospital could be managed through the ambulatory care services model, 255,000 inpatient patient days[35] in 2018/19 (or 820 bed equivalents, assuming 85% occupancy rate) may potentially be reduced. In addition, if all patients admitted from the A&E Departments to inpatient wards in 2018/19 who stayed for one or two night(s) in hospital could be managed through the ambulatory care services model, 474,000 inpatient patient days (or 1,530 bed equivalents, assuming 85% occupancy rate) may potentially be reduced. Ambulatory care services model, as a complementary model to the traditional hospital-based care, potentially helps meet healthcare demands, especially when increasing physical bed capacity is heavily limited by physical space, financial resources and manpower.

35 The figure refers to the sum of (1) inpatient patient days for inpatient admissions sourced from outpatient departments in 2018/19 with length of stay less than or equal to two days, and (2) pre-operative inpatient patient days for inpatient admissions sourced from outpatient departments in 2018/19 with length of stay more than two days and with first performed operation of elective nature and specialty same as the admission specialty recorded in the Operating Theatre Records System.

Current Ambulatory Care Services in HA

Due to historical reasons, most of HA's services are delivered through an inpatient, hospital-based model. This applies to many relatively simple and straightforward procedures, treatments, or service programmes, which could otherwise be carried out in an ambulatory care setting. However, with the policy support from management and the hard work from our staff, HA has been able to gradually enhance the provision of ambulatory care for selected services to our patients.

Examples of Programme-based Ambulatory Care Services – Day Hospitals

Geriatric Day Hospitals

Geriatric day hospitals are ambulatory healthcare facilities providing multi-disciplinary assessment, treatment and rehabilitation. It is one of the pioneers and a good example of ambulatory care services in HA. Led by geriatricians, a variety of integrative specialised services are provided to frail, elderly patients with complex problems, such as falls, memory loss and deconditioning. The target patients of GDH are elderly patients with co-morbidities and rehabilitation potential. All new GDH referrals are screened by geriatricians to ensure appropriateness of admissions. The objectives of GDH are to: (a) reduce disability and enable patients' integration to community living; and (b) facilitate timely hospital discharge and reduce unnecessary hospitalisation. GDH serves in particular (a) to continue one-stop medical management and multi-disciplinary care in ambulatory care settings instead of inpatient hospitalisation to support timely discharge of elderly patients who require services but are able to safely return home overnight; and (b) to provide rapid response services such as fast-track medical consultations to avoid unnecessary A&E attendances and inpatient admissions.

With the increasing utilisation of the services in GDHs, the number of GDHs has increased from the original five with 190 day places and around 40,000 attendances in 1992/93 to 19 GDHs, providing over 910 day places and around 190,000 attendances in recent years.

Peri-operative Care Programmes

In the past years, there has been more emphasis on peri-operative care for surgical patients. Services such as Enhanced Recovery After Surgery programmes, and pre-operative assessment clinic have been used to optimise surgical patient care. These patient-centred programmes aim to facilitate patients' recovery after surgery via multi-disciplinary team involvement in optimising patients' physiological function and condition peri-operatively.

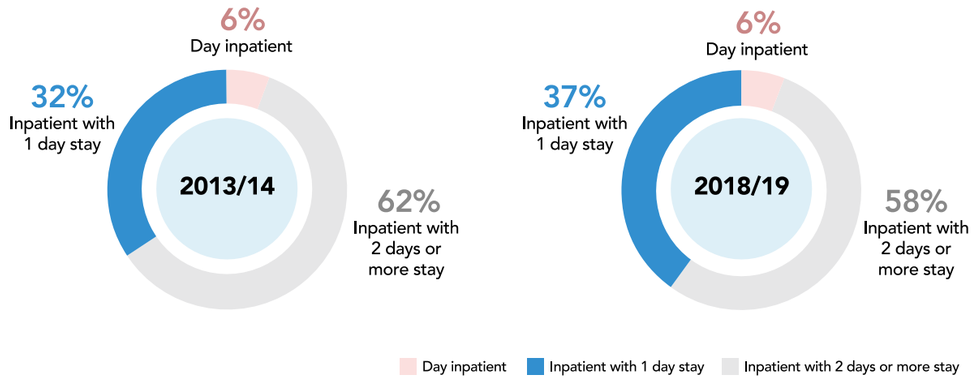
In 2018/19, there were 51,000 elective admissions for operations under the Departments of Surgery across HA. Amongst these admissions, 74% were admitted on the same day of the operation, without pre-operative inpatient stay. In the same period, the 18,000 elective admissions for operations under the Departments of Orthopaedics and Traumatology across HA, 62% were admitted on the same day of the operation, without peri-operative inpatient stay. The high proportion of same day admission for surgical procedures has been contributed to the hard work from our clinical colleagues, utilising the programmes such as pre-assessment clinic assessment and peri-operative multi-disciplinary support. This has led to a reduction in some of the unnecessary inpatient stay, potentially reducing the related hospital-acquired complications for our patients.

Examples of Procedure-based Ambulatory Care Services – Day Surgeries

Laparoscopic Cholecystectomy

Cholecystectomy is amongst one of the earlier procedures to embark on a minimally invasive approach. It is one of the commonly-performed elective surgical procedures in HA with a total of 3,600 elective and emergency cholecystectomies performed in 2018/19. The total number of laparoscopic cholecystectomy performed in HA increased by 22% from 2,400 in 2013/14 to 2,900 in 2018/19, while there was an increase in volume of elective laparoscopic cholecystectomies by 11%. The proportion of elective laparoscopic cholecystectomy performed as day inpatient without overnight stay remained at 6% (Figure 6).

Figure 6. Length of Stay of Patients with Elective Laparoscopic Cholecystectomy Performed in 2013/14 and 2018/19[36]



The vast majority of elective laparoscopic cholecystectomies are performed with patients staying as inpatient post-operatively. Of these non-day surgery elective laparoscopic cholecystectomies performed in 2018/19, around one quarter of patients required pre-admission one day before the surgery. Around half of these non-day surgery elective laparoscopic cholecystectomies stay for only one night after the surgery, indicating that there might be room for enhancements in the peri-operative workflow, working towards reducing avoidable inpatient stay.

Cataract Surgery

Cataract surgery is predominantly performed as day surgery in HA. The annual number of cataract surgeries had remained at around 26,000 in 2013/14 and 2018/19. The majority of these patients (around 85%) were managed as day inpatients. This high proportion of day surgery for cataract surgery has been maintained in the past years.

Cataract centres have been established at the Grantham Hospital (GH) in 2009 and Tseung Kwan O Hospital (TKOH) in 2011. After establishment of the cataract centres, there was a dramatic increase of cataract surgeries performed in GH and TKOH from an average of 30 and 86 cataract surgeries per surgeon before the set-up of the centre, to an average of 193 and 132 surgeries per surgeon[37] after the set-up of the centres respectively. Following the establishment of these cataract centres, the marked increase in cataract surgeries performed per surgeon became similar to that of specialty hospitals such as the Hong Kong Eye Hospital for which the yearly number of cataract surgeries per surgeon were ranged from 100 to 132 during the period of 2010/11 to 2019/20. There is indication that a centre-based arrangement for selected procedures such as cataract surgery has a positive effect on throughput.

36 The sum of individual percentages may not add up to 100% due to rounding.
37 It includes only elective cataract surgeries with single operating surgeon.

Key Areas Identified for Service Improvement

What We Need to Do Better

Comprehensive review of HA's ambulatory care services has been conducted to identify areas for improvement, and to guide the formulation of strategies for service development and enhancement. This chapter delineates the five key areas in HA for further enhancement and improvement: 1) definition of ambulatory care services in HA; 2) governance and service organisation; 3) ambulatory care services model; 4) key enablers; and 5) performance monitoring for ambulatory care services in HA.

Definition

The definition of ambulatory care services in HA has been "health services rendered to patients not occupying an institutional bed overnight". This operational definition refers to patients who were not admitted via the A&E Departments, and who were discharged before 12 a.m. midnight on the same day of admission. Ambiguity is generally less in ambulatory care services provided via SOPCs and primary care clinics. However, the scope and definition for day services is less clear. All patients fulfilling such criteria, with or without the intention for non-inpatient services would be included as day services. Under this operational definition, patients electively admitted for procedure, but cancelled and discharged prior to midnight due to any circumstances will be regarded as day inpatients. Similarly, patients electively transferred from one hospital to another hospital and those who passed away prior to midnight will also be counted as day inpatients. On the contrary, a simple, day procedure with delayed discharge to the following morning due to logistic or social reasons will be regarded as an inpatient attendance. This classification of ambulatory care services, by proxy, based on the timing of discharge may result in an inaccurate reflection of day service provision. A more appropriate approach for defining such services by the intent of the healthcare services to be provided is required.

Governance and Service Organisation

At the corporate level, COC/CCs are platforms to advise HA on service development. Currently, day services subcommittees and related working groups under some COC/CCs (e.g. palliative care and rehabilitation) exist, at which the development of ambulatory care services is discussed.

At the cluster level, Clinical Services Plans (CSPs) with its hospital role delineation help guide the development of ambulatory care services across different hospitals within the clusters. Local implementation or adoption of ambulatory care services model in clusters are discussed in different cluster-based platforms, such as Ambulatory Care Committees, and Cluster Management Committees. In the New Territories West Cluster, the Ambulatory Services Committee of Pok Oi Hospital and Tin Shui Wai Hospital provides guidance to the organisation of ambulatory care services within the cluster. Similarly, the Ambulatory Surgery Committee in the Kowloon Central Cluster (KCC). Experience sharing reveals the achievement of the committees at improving the provision of ambulatory surgery and quality of services.

Service Model

With the traditional hospital-centric model of service delivery in HA, there is a lack of separation of the inpatient and ambulatory care workflows. This potentially creates avoidable admissions and increasing utilisation of inpatient beds. Reduction of avoidable admissions could lead to potential reduction of complications such as hospital-acquired infections. Furthermore, reduction of the stay in unfamiliar and often crowded hospital environment is beneficial to frail, elderly patients who may be prone to disorientation and de-conditioning[38,39]. By maintaining the patients' independence and their connection with families and social networks by staying in the community, patients could be kept healthy in the community as much as possible. The ambulatory care services model should serve as a complementary model to hospital-centric care to provide sustainable care to meet our service demand.

Efforts should be made to explore for opportunities to separate elective and emergency patient workflows for services such as selected diagnostic imaging services which are relatively protocol-driven and of relatively low complexity. Currently, diagnostic services are predominantly hospital-based, with facilities catering for emergency and non-emergency patients within the same workflow. Diagnostics in the emergency setting have greater heterogeneity with varied patient needs and workflows. In comparison, elective diagnostics are relatively protocol-driven. The separation of workflow can be performed, for example, by scheduling elective diagnostics in a coordinated, multi-disciplinary territory-based diagnostic centre to facilitate streamlined workflow to benefit more patients.

38 Salina Juma et al. (2016). Clinical Frailty Scale in an Acute Medicine Unit: A Simple Tool that Predicts Length of Stay.
39 Donna M Fick et al. (2014). Delirium Superimposed on Dementia is Associated with Prolonged Length of Stay and Poor Outcomes in Hospitalised Older Adults.

Key Enablers

Various enablers, such as information technology (IT) systems, resource allocation mechanism, accessibility support, manpower support are important for enhancing our service delivery. These enablers are complementary to the clinical expertise and workflow redesign for provision of day services.

Information Technology Systems

Enhancement of IT systems will be important to facilitate the identification of patients intended for day services. Healthcare professionals should be able to access the Clinical Management System (CMS) to manage the entire patient journey for day services. Enhancements can be considered in the following areas:

- Appointment scheduling – support the capture of ambulatory care services according to the refined definition of ambulatory care services through the booking system or upon admission of the patient for receiving day services
- Operation support – direct linkage between the booking and admission of patients for day service provision to support the operations of the day centres
- Workflow support – enhance CMS to improve the workflow and care documentation of the day centres
- Care coordination and communication – enhance CMS and HA Go to support patient empowerment via tele-information, appointment reminders and notifications

Resource Allocation Mechanism

Under the current resource allocation mechanism, resource allocation is predominantly based on the number of beds to be opened for delivery of inpatient services. This applies to both financial resources and manpower allocation. Allocation of resources are available for "non-inpatient based services" proposals, but aligned parameters may not be available for such allocations. As a result, it has inadvertently been considered a disincentive to develop non-inpatient based services, such as day services. Moreover, provision of day services for structured day programmes is hugely experience-dependent and labour-intensive. The quick turnover of patients receiving day services inevitably creates immense workload. The need for swift and precise decision-making also demands a high level of experience from staff. Clearer resource allocation parameters for "non-inpatient based services" initiatives will facilitate service delivery through the ambulatory care services model.

Facilities and Infrastructures

"Function before form" is a principle commonly used in the world of architecture and design. The same applies to health services management. With the policy direction shift to embrace ambulatory care services, attempts have been made in various clusters to arrange such service locations to facilitate the workflow and service delivery. Where opportunities arise, ambulatory care centres are to be set up to facilitate the service delivery. Examples of designated ambulatory day surgery facilities include the designated day surgical centre in KCC and the day surgery block in TKOH. With hospital role delineation clearly stipulated in the CSPs in all clusters, infrastructures facilitating ambulatory care services delivery will be incorporated in upcoming opportunities, especially in the first and second 10-year Hospital Development Plans supported by the Hong Kong Government.

Performance Monitoring

Under the current performance monitoring mechanism, day inpatient discharges and deaths for day beds, and day attendances for day hospital activities are monitored. Aside from day hospital services and SOP services, HA also regularly reports on the ambulatory care services based on day inpatient activities by proxy. There has been growth in day inpatient share (as a percentage of all inpatient and day inpatient discharges and deaths for general specialties[40]) from 35.5% in 2014/15 to 37.6% in 2018/19. In addition, specialty-based key performance indicators (KPIs) for pre-defined procedures covering surgery, orthopaedics & traumatology and ophthalmology have been developed to monitor the proportion of these procedures being performed as same day surgery or day surgery.

With the refinement in definition of ambulatory care services in HA, appropriate performance monitoring parameters should be devised.

40 General specialties refer to specialties other than psychiatry, infirmary and mentally handicapped specialties.

Strategic Service Framework for Ambulatory Care Services

Where We Are Going and How We Will Get There

Based on the key areas identified for improvement, a comprehensive strategic service framework is formulated for ambulatory care services in HA. One strategic direction is set for each respective key area. These six strategic directions collectively outlined HA's general direction for development and improvement of ambulatory care services.

Under each strategic direction, strategies are formulated to address current and anticipated challenges faced by HA. Collectively, they map out the steps that HA will undertake to achieve the vision, "To provide appropriate and effective ambulatory healthcare services to patients in HA". The overall strategic framework is summarised in Table 3, while details of strategic directions and corresponding strategies are outlined subsequently in this chapter.

Table 3. Strategic Service Framework for Ambulatory Care Services

Key Areas for Improvement	Strategic Directions (Where we are going)	Strategies (How we will get there)
Definition	1. Refine the definition of ambulatory care services in HA	1.1 To define ambulatory care services, including day services, outpatient services and A&E services for HA to align service provision and facilitate performance monitoring 1.2 To engage COC/CCs in patient selection and procedure matching for day services
Governance	2. Strengthen the governance and linkage of day services between corporate and clusters	2.1 To strengthen the roles of COC/CCs in the development of day services 2.2 To establish regular reporting on day services development in COC/CCs and Cluster Management Meetings
Service Organisation	3. Enhance service organisation in HA	3.1 To perform territory-based day services for appropriate healthcare services in designated ambulatory care settings 3.2 To implement hospital-based and cluster-based day services according to the role delineation established in clusters' CSPs
Service Model	4. Develop care pathways for day services to reduce avoidable admissions	4.1 To stratify patients according to their risks by medical teams and/or stratification tools 4.2 To provide protocol-driven programme-based and function-based day services and support patients to stay healthy in the community
Enablers	5. Optimise key enablers to support service development and implementation	5.1 To promote the implementation of day services by optimising IT systems 5.2 To facilitate the development of day services by refining the resource allocation mechanism
Performance Monitoring	6. Develop standardised measures for effective monitoring of the outcome of day services	6.1 To facilitate the development of corporate-wide standardised measures by enhancing existing admission and booking systems to provide clearer indication of patients intended for day services 6.2 To devise monitoring parameters for performance monitoring and future service planning

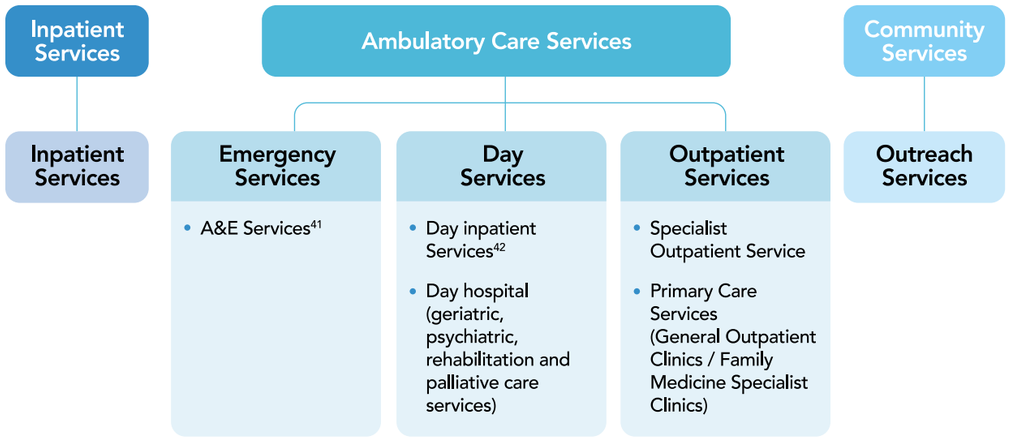
Strategic Direction 1
Refine the Definition of Ambulatory Care Services in HA

Under the current operational definition of ambulatory care services in HA, patients who were not admitted via the A&E Departments, and who were discharged before 12 a.m. midnight on the same day of admission are identified as patients undergoing ambulatory care services. The identification of ambulatory care patients based on the timing of discharge might result in an inaccurate reflection of day service provision. A more appropriate approach for defining such services should be by the intent of the healthcare services to be provided.

Strategy 1.1: To Define Ambulatory Care Services, including Day Services, Outpatient Services and A&E Services for HA to Align Service Provision and Facilitate Performance Monitoring

To reflect the workload of our staff in providing day services, refinement of the definition according to the intent of services provision in a healthcare facility is suggested. The proposed definitions are as follows (Figure 7):

Figure 7. The Scope of Ambulatory Care Services in HA



41 A&E services include the services provided in the observation wards.

42 'Day inpatient' is defined based on an operational definition in HA, referring to patients who are not admitted via the A&E Departments and discharged on the same day of admission, while 'day patient' is a general term used for day services.

Day Services:

Day services should be defined as healthcare services intended to be delivered to a patient in a healthcare facility within the same day without overnight stay. The main intention is to provide structured day programme, day procedure or multi-disciplinary care for the patient.

Outpatient Services:

Outpatient services should be defined as healthcare services intended to be delivered to a patient in a healthcare facility within the same day without overnight stay. The main intention is to provide consultation by a single discipline, but not as part of a structured day programme.

A&E Services:

A&E services should be defined as emergency healthcare services provided in the A&E Departments, including those provided in the observation ward.

Inpatient Services:

Inpatient services should be defined as healthcare services delivered to a patient in a healthcare facility during a single admission episode intended for more than one day.

The services intended to be provided will be the main differentiating feature between day services and outpatient services. Structured day programmes, day procedures or multi-disciplinary care sessions for patients will in general be included as day services, while professional consultation by a single discipline, such as doctors, nurses, allied health or pharmacists, to the patient are regarded as outpatient services. Structured day programmes, day procedures or treatments provided to patients will be regarded as day services. Due to the nature of these services, a relatively longer period of time per patient encounter should be allowed as compared to outpatient services. Wherever possible, the provision of one-stop multi-disciplinary day services for patients should be encouraged. The need for patients to visit different outpatient clinics for assessment or treatment due to logistic reasons should be minimised. Short consultation sessions by a multi-disciplinary team to discuss treatment plans can be included as either day or outpatient services depending on whether a structured day programme or procedure is included during the session.

Strategy 1.2: To Engage COC/CCs in Patient Selection and Procedure Matching for Day Services

The detailed procedures or service components to be included as day services will be advised by relevant COC/CCs and aligned across clusters, taking into account patients' healthcare needs, the complexity of procedures to be performed, and the amount of time required for provision of the service. A relatively simple and straightforward procedure, for example, an endoscopic procedure may be performed as a day procedure for an otherwise healthy and fit patient, but may require inpatient care for a frail, elderly patient with complex healthcare needs (Table 4).

Table 4. The Mode of Service Delivery – Patients' Healthcare Needs vs Complexity of Procedure

	Complexity of Procedure		
Patients' Healthcare Needs	**More Complex** (requiring multi-disciplinary support)	**Less Complex** (requiring multi-disciplinary support)	**Simple**
More	Inpatient services	Inpatient services	Inpatient services
Less	Inpatient services	Day services	Day services or outpatient services
Minimal	Inpatient services	Day services	Outpatient services

Strategic Direction 2
Strengthen the Governance and Linkage of Day Services between Corporate and Clusters

To keep up with the evolving service needs and to align with policy directions for ambulatory care services, the governance of day services will be enhanced with strengthening of the linkage between the corporate and cluster levels. The strengthened governance will provide a structured platform for enhancing the coordination of day services planning and implementation.

Strategy 2.1: To Strengthen the Roles of COC/CCs in the Development of Day Services

Currently COC/CCs for individual specialties oversee and advise on the development of day services under its specialty. With the refined definition as outlined in Strategy 1.1, detailed procedures or service components to be included as day services will be advised by relevant COC/CCs and aligned across clusters.

Strategy 2.2: To Establish Regular Reporting on Day Services Development in COC/CCs and Cluster Management Meetings

It is proposed that COC/CCs could advise on the required regular reporting items to COC/CCs meetings for day services. At the cluster level, the establishment of cluster-based platforms, overseen by senior executives, would facilitate the local development and implementation of day services.

Strategic Direction 3
Enhance Service Organisation in HA

One of the contributing factors for the gaps in the implementation of ambulatory care services across HA is the fragmented service development and provision. Although role delineation of each hospital in their respective clusters is clearly stipulated in the CSPs of individual clusters, service organisation and coordination of ambulatory care services can be further enhanced by exploring the potential for territory-based provision of services. Cataract surgery, supported by establishment of territory-based cataract centres, is a successful example of territory-based ambulatory care service in HA.

Strategy 3.1: To Perform Territory-based Day Services for Appropriate Healthcare Services in Designated Ambulatory Care Settings

Day services which are highly protocol-driven and of low complexity could be provided in territory-wide ambulatory care centres. Such services should be explored for implementation in relevant COC/CCs.

One example of territory-based services is the "Diagnostic Imaging Services in Ambulatory Care Centres" proposed by COC (Radiology), which is illustrated in subsequent chapter. Central and satellite ambulatory imaging centres are proposed to be set up to separate emergency and elective diagnostic imaging flow. Other examples of services which could be provided under a territory-based approach will be radiotherapy for selected patients.

Strategy 3.2: To Implement Hospital-based and Cluster-based Day Services According to the Role Delineation Established in Clusters' CSPs

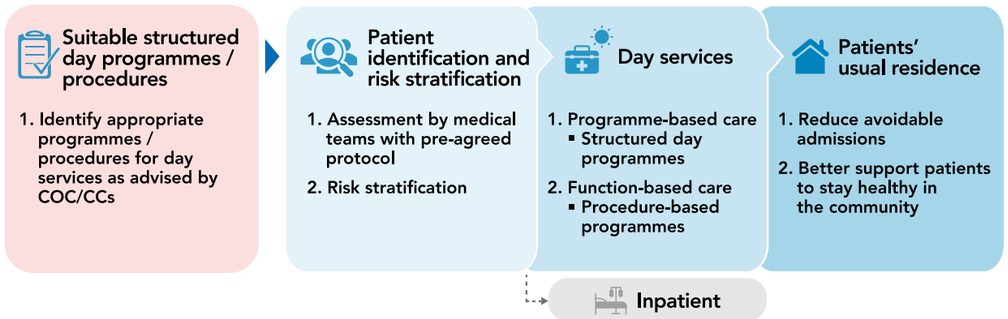
Day procedures and programmes should be provided via a hospital-based or cluster-based approach in accordance with hospital role delineation as stipulated in the respective CSPs.

Strategic Direction 4
Develop Care Pathways for Day Services to Reduce Avoidable Admissions

The aim of day services in HA is to provide appropriate services to the right patients at the right place. The selected healthcare services to be delivered as day services will be performed in the day settings and aimed to reduce avoidable admissions and to provide appropriate post-discharge support to facilitate patient transition back to their usual place of residence.

A generic care pathway for day services is formulated to guide COC/CCs to develop their respective service models for its implementation (Figure 8).

Figure 8. General Care Pathway of Day Services



Strategy 4.1: To Stratify Patients According to Their Risks by Medical Teams and/or Stratification Tools

Upon selection of the appropriate services to be delivered as day services, risk stratification and identification of suitable patients will be performed by clinical teams. Relevant key information to stratify patients' suitability for day services may include demographics, co-morbidities, diagnosis, procedures and services to be provided. Stratification tools and risk prediction models can be utilised as appropriate. For day services which are highly protocol-driven and of lower complexity, relatively lower risks patients will be selected. For other day services such as post-discharge ambulatory support for patients to reduce avoidable hospital admissions, patients with high risk of repeated admissions will be selected for post-discharge support programmes.

Strategy 4.2: To Provide Protocol-driven Programme-based and Function-based Day Services and Support Patients to Stay Healthy in the Community

To better illustrate future service model for day services, examples of the care pathway for programme-based and function-based care have been developed. Programme-based care is healthcare services for disease or demographic cohorts provided under a multi-disciplinary approach, such as rehabilitation and emergency visits[43,44,45]. Function-based care is largely procedure-based care provided by a single specialty. Examples include diagnostic imaging services, day surgery, and day chemotherapy[46,47,48]. To provide better illustration of the future service model for day services as set out in this Framework, three illustrative examples are developed and presented below.

Programme-based Care

In the "Ambulatory Programme for Congestive Heart Failure Patients", post-discharge transitional support will be provided for patients who were identified upon discharge to have high risk for repeated heart failure (HF) requiring repeated re-admissions for treatment. Multi-disciplinary support with patient education, medication titration and cardiac rehabilitation will be provided in the transitional ambulatory centre, aiming to reduce the needs for repeated admissions and to support the patient to stay healthy in the community.

Function-based Care

In the proposal of "Diagnostic Imaging Services in Ambulatory Care Centres", separation of inpatient and day patient flow will be advocated. Appropriate protocol-driven imaging procedures such as diagnostic CT scans can be performed in designated ambulatory care centres. Tele-radiology and cross-cluster off-site reporting will facilitate the workflow and provision of ambulatory diagnostic imaging services.

In the "Ambulatory Interventional Radiology Services", appropriate interventional radiology (IR) procedures will be identified and performed in ambulatory care centres. Pre-procedural and post-procedural assessments will be performed under a shared-care model by both the parent and the IR teams.

43 Leslie Welch (2010). IFHE Digest 2010: Ambulatory Care Steps Ahead.
44 National Health Service (2010). How to Implement Ambulatory Emergency Care (Emergency Day Care).
45 British Journal of Healthcare Management (2002). On Defining Ambulatory Care in Practice. Vol 8, No. 8.
46 Leslie Welch (2010). IFHE Digest 2010: Ambulatory Care Steps Ahead.
47 National Health Service (2010). How to Implement Ambulatory Emergency Care (Emergency Day Care).
48 British Journal of Healthcare Management (2002). On Defining Ambulatory Care in Practice. Vol 8, No. 8.

Ambulatory Programme for Congestive Heart Failure Patients

Current Services Arrangement

The prevalence of HF continues to rise accounting for 1% of Hong Kong population in 2018, an increase of 19% when compared with 2010. Currently there are more than 11,000 newly diagnosed cases annually, of which 93% has presented as acute admissions to hospitals annually from 2010 to 2018. The trajectory course of HF, though comparable to other forms of progressive organ failure such as chronic obstructive pulmonary disease and various cancers, is exceptional in its unpredictable clinical course and recurrent relapsing periods of instability associated with deterioration of heart function. The risk of all-cause re-admission of patients hospitalised for HF is high in Asia, with the 30-day re-hospitalisation ranging from 3% to 15%[49] and up to 28% to 32%[50] based on data on local hospitals in 2016. Many HF hospitalisations are driven by gaps in the process of care rather than worsening pathophysiology. Our HF service gaps identified are as follows:

1. Patients' difficulty with timely diagnosis due to lack of availability of HF biomarkers (namely N-terminal pro-brain natriuretic peptide (NT-proBNP)) and inpatient cardiac echocardiography.
2. Sub-optimal initiation and titration of guideline-directed optimal medical therapies in acute medical ward settings.
3. Access barriers to effective cardiology outpatient care due to long waiting time for new appointment (the current estimated approximate mean waiting time is more than 100 weeks in HA).
4. Lack of discharge care planning by HF team resulting in inefficient and fragmented care. As a result, newly diagnosed HF patients are being discharged without imminent support and can only be re-admitted through the A&E Departments during another episode of acute decompensation of HF.

49 Reyes EB, Ha JW, Firdaus I et al. (2016). Heart Failure across Asia: Same Healthcare Burden but Differences in Organisation of Care. International Journal of Cardiology; 223, 163-187.
50 Hai JJ, Chan PH, Huang D et al. (2016). Clinical Characteristics, Management, and Outcomes of Hospitalised Heart Failure in a Chinese Population – the Hong Kong Heart Failure Registry. Journal of Cardiac Failure; 22, 600-608.

Proposed Service Model

There is increasing pressure from escalating hospital admissions for HF. This is partly the result of the shift in interest towards multi-disciplinary programmes that concentrate on transitions of care particularly between acute phase and post-discharge chronic phase. An alternative paradigm is proposed which aims to improve outcomes of HF patients with the establishment of Transitional Ambulatory Care Centre for Heart Failure (TACC-HF). The focus of intervention will shift towards re-construction of the chronic HF regimen to maintain freedom from re-congestion and preventable re-hospitalisation and improve long-term outcomes. For transitional ambulatory care services for HF service model, there are needs for further advances in optimising HF management across the different phases along the continuum of care. Specifically, it has been demonstrated that the transition between hospital discharge and outpatient follow-up is a key essential stage for improved clinical outcome and reduction in preventable HF hospital re-admissions.

Proposed Care Pathway

This new integrated care model for HF revolves around interventions at the time of transition of care from hospital discharge after stabilisation of acute decompensated HF in hospital to subsequent stages of chronic HF to be managed as outpatient ambulatory care and even within the community. Each hospitalisation for HF provides a pivotal point to set the patient on the best suited pathway with guideline-directed, medication titration after achieving the goal of decongestion. Movement towards hospital discharge planning begins with standardised information transfer to subsequent care team in TACC-HF as well as education given to patients and their caregivers.

The care pathway is multi-disciplinary and patient-centred, and designed to ensure continuity of care. Personalisation of care is central. The relative importance of the different components will be unique to each patient and their caregivers, and will vary in intensity over the course of the illness. Cardiac rehabilitation programme for HF will become an important integral part of this programme.

The TACC-HF multi-disciplinary team will be led by cardiologists, composed of cardiac specialty nurses (such as advanced pratice nurse, associate nurse consultant, nurse consultant, etc.), together with healthcare professionals (such as clinical pharmacist, dietician, physiotherapist, occupational therapist, clinical psychologist and social worker). IT programmes and tele-communication support will be essential for initiation of tele-health measures such as tele-consultation, remote monitoring and tele-rehabilitation. This is especially essential for high-risk and frail HF patients staying at home.

Respective professional role delineation in this TACC-HF are:

- **Hospital clinical lead HF cardiologist** can be responsible for initial HF evaluation and etiology identification, medication prescriptions and interventional procedures, referral for advanced HF services when indicated, supervising and streamlining HF services by developing care protocols and clinical pathway. They will be responsible for audits of services focusing on outcomes measures and to collaborate with palliative care team for advanced HF.
- **Cardiac specialty nurses (such as advanced practice nurse, associate nurse consultant, nurse consultant, etc.)** can be responsible for providing direct, high-quality and effective specialist nurse service for HF patients. They will be collaborating with HF cardiologists and other multi-disciplinary team members for assessment, planning and implementing individualised care plans. They will take part in setting protocols, titrating medications according to protocols, monitoring its effect and side effects, medical compliance, HF signs and symptoms; as well as assisting in performing echocardiogram (ECHO) assessment and ensuring maintenance of adequate and effective discharge planning. They also have to assess and monitor the patients during rehabilitation, and demonstrate a commitment to patient education and empowerment, health promotion and illness prevention. At the management level, they will be contributing to development and implementation of HF rehabilitation programme, information sharing protocols, audit systems, referral pathways, individual care plans and shared-care arrangements. They will also participate in departmental clinical governance processes, and maintaining professional standards including patient and data confidentiality.
- **Clinical pharmacist** can be responsible for providing professional support in optimisation of medical therapies for TACC-HF. They can perform medication review to provide recommendations and can be responsible for providing patient education to improve their understanding on HF therapy, counselling on the drug regimen and changes following discharge.
- **Dietician** can be responsible for nutritional assessment to achieve cardio-protective dietary support, provision of comprehensive review and monitoring of nutrition therapy to meet specific nutritional goals.

- **Physiotherapist** can be responsible for developing centre-based supervised cardiac rehabilitation exercise programme for HF patients. They can also be responsible for conducting cardio-pulmonary exercise test assessments and participate in home-based cardiac rehabilitation programme via tele-rehabilitation.
- **Occupational therapist** can be responsible for facilitating HF patients to achieve maximal level of functional independence after discharge to enable timely return to the community through assessment of activities of daily living, work simplification training, energy conservation and occupational lifestyle redesign. They can also be responsible for assessment and fitting of aids and adaptations at home and/or at work, via on-site or tele-health. Cognitive assessment and stress management can also be offered as required.
- **Clinical psychologist** can be responsible for providing a variety of psychological services, including promoting psychological well-being, addressing psychological problems, conducting assessments, diagnosis, treatment and prevention of mental health disorders. The aim is to enhance management of psychological distress and to promote adaptation.
- **Social worker** can work as part of multi-disciplinary team, to promote health and patient well-being, to focus on fostering advocacy and empowerment and to encourage self-help in the local community. They can also be responsible for providing support for people who are socially isolated due to illness, disability or lack of support.

Risk Stratification Scores

Risk stratification scores, such as Seattle Heart Failure Scores, European Collaboration on Acute Decompensated Heart Failure scores and modified LACE score, can be utilised to categorise patients. The urgency and intensity for follow-up will be stratified according to the risk groups identified.

Further Advanced Transitions in Care Pathway

Strategy for patient evaluation and management following a diagnosis of HF with reduced ejection fraction (HFrEF) will require serial evaluation and titration of medications during the intensification period post-hospital discharges. With repeated assessment of response to therapy and cardiac re-modelling (three to six months), stabilised patients can be referred out to cardiac clinic for long-term follow-up. For HF patients who failed to demonstrate any response or have persistent HF symptoms despite best tolerated guideline-directed medical therapy, referral to advanced HF specialists should be considered. Should acute decompensation HF eventuate, medical SOPCs and/or cardiac clinics should facilitate rapid access to TACC-HF specialist assessment and interventions. With further advanced support and practical experience of TACC-HF, more advanced interventions such as infusion therapies and ultra-filtration can be performed within the ambulatory care unit, thereby reducing admissions and reserving A&E emergency admission capacity to only when patients' condition deteriorated further.

Development of Outcome Measurement

A set of indicators in the domains of quality and accessibility will be developed, such as:

1. Rate of re-admissions within three months following discharge
2. Median length of stay for all patients admitted with principal diagnosis of HF
3. Percentage of use of evidence-based or guideline-directed medication
   - Percentage of patients with reduced left ventricular function (HFrEF) on angiotensin converting enzyme inhibitors, angiotensin receptor blockers or angiotensin receptor neprilysin inhibitors
   - Percentage of patients with reduced LV function (HFrEF) on beta blockers
   - Percentage of patients with reduced LV function (HFrEF) on mineralocorticoid antagonist

Prioritisation of Implementation Plans

Short Term (< 3 years)

- Set up TACC-HF multi-disciplinary team with care coordinators to facilitate safe and smoother transition of patient care from hospital discharge to TACC-HF
- Develop care pathway and protocol providing serial monitoring and medication titration during transition period
- Introducing HF biomarker (NT-proBNP) in all hospitals and TACC-HFs for diagnosis and assessment of prognosis to be incorporated into risk score assessment
- Providing cardiac ECHO services for inpatients with probable diagnosis of HF, which will facilitate triaging patients into TACC-HF service
- Establishing tele-health consultation and remote monitoring for appropriate HF patients

Medium Term (3-5 years)

- Providing cardiac ECHO services for all outpatient cardiac services by organising training and certification
- Providing advanced and more extensive outpatient management or interventions in TACC-HF such as infusion therapy and ultra-filtration to reduce acute A&E admissions

Long Term (6-10 years)

- Collaboration between A&E Departments and TACC-HF for management of patients with acute decompensation HF

Diagnostic Imaging Services in Ambulatory Care Centres

Current Services Arrangement

At present, the diagnostic imaging facilities in HA are mostly housed in acute hospitals to serve both inpatients and day patients. Along with the growing demand of medical imaging over the last few decades, radiology workflow has become increasingly complex and it has been increasingly recognised that imaging for inpatients differs distinctly from that of day patients. Compared to the latter, inpatients more commonly have poorer general conditions and require more time-critical investigations to support clinical decision. The involved imaging procedures are more complex and necessitate manpower-demanding pre-procedural care. Timely reporting by radiologists are needed to expedite the clinical management. Urgent examinations for inpatients are particularly challenging as they occupy considerable machine time in a somewhat unplanned manner.

When two streams of different patient pathways converge into a common channel, this leads to congestion and turbulence in an already complex web of workflows in the Radiology Departments. The delay and waiting time generated by the variabilities in patient preparation, examination techniques and pre-procedural care often result in operational inefficiencies. The outcome is a negative impact on productivity and downstream care for both groups of patients. Notably in the scrambling for imaging timeslots, inpatients are often prioritised in light of their higher clinical needs. The consequence is limitation of service accessibility to ambulatory cases, as evidenced by the lengthening of radiological examinations waiting time in HA hospitals over the past years.

The experience in many overseas countries has demonstrated that diversion of imaging services to ambulatory care centres can improve efficiency and productivity. In addition, initiatives for quality improvement such as workflow automation and enhanced digital engagement of patients can be more effectively implemented through minimising process variabilities.

The COVID-19 crisis has highlighted the need for implementing adaptive infection control measures in acute hospitals during disease outbreak. Although day patients stay only transiently in acute hospitals, the prevention of potential cross-infection is still required. The congestion of inpatients and day patients together in the Radiology Departments has rendered practical difficulties in implementing effective infection control measures. To better face the challenges, future workflow re-design should consider effective separation of these service pathways.

Proposed Service Model

It is proposed to divert selected imaging services to ambulatory imaging facilities. Through scheduling radiology appointments and streamlining workflow of imaging services by providing services at designated venues outside of acute hospitals, the aim is to enhance operational efficiency, productivity and accessibility of services, and improve quality of care and patients' experience.

Strategic planning is the starting point to establish ambulatory imaging centres. Focus should be placed on identifying suitable locations and feasibility for setting up the imaging centres, analysing the gaps of imaging services, vigilant forward planning on installing imaging equipment, designing future service scope and re-arranging the related workflows. The recent advancement in digital connectivity of radiological services has allowed for flexibility in the establishment of ambulatory imaging facilities, which may function as a freestanding unit, affiliating to a convalescent, rehabilitation or outpatient unit, or as part of a comprehensive ambulatory care centre. While the services provided by an ambulatory imaging centre are intended to address specific service gaps, it is preferable to maximise the economy of scale by concurrent operation of multiple imaging modalities. CT scan, MRI, general X-ray, ultrasonography or mammography are the imaging modalities that may be considered in an ambulatory imaging centre.

The care pathway for ambulatory imaging services starts with digital appointment booking via the Generic Clinical Request System (GCRS). The requests are vetted and triaged by a central booking hub in the Radiology Department of the respective hospitals or clusters. Suitable cases will be selected and scheduled with appointments at the ambulatory imaging facilities. The appointment information and instructions will then be dispatched to patients. Patients will also be digitally engaged prior to their appointments, via mechanisms such as personalised text messages to provide personalised instructions and reminders to reduce likelihood of no-show.

The imaging services at an ambulatory care centre will be operated by radiographers, nurses and supporting staff. Radiological examinations involve several key processes including registration, pre-procedural education, scanning and post-procedural care. It is anticipated that only a small number of on-site clerical staff is required for pre-examination registration and basic clerical support. Radiographers are responsible for the scanning of patients, post-processing of images, management of data transfer and coordination of patient traffic. Nurses are responsible for patient education, post-procedural care and providing discharge instructions. Initiatives for enhanced workflow and patient's experience are to be introduced in the ambulatory imaging centres. Pre-procedural patient education will be conducted in groups via video to achieve patient education whilst reducing nursing workload. As the types of radiological procedures provided are expected to be of low variability, full-scale workflow automation based on protocol-driven scanning and standardised post-processing of images will be implemented. Since there will be no need to cater for urgent examinations, more compact scheduling of radiological examinations is possible. Machine idle time and the time patients spent waiting for the examinations will be reduced.

After the examinations, the images will be uploaded to Picture Archiving and Communication System (PACS) of the Radiology Departments and electronic patient records of HA. Through the HA IT and medical network, the images will also be accessible for off-site reporting. In general, only a minimum number of on-site radiologists would be required for essential medical support, specific imaging services, clinical supervision and local administration. The majority of imaging reporting is to be handled by off-site reporting by radiologists stationed at the respective acute hospitals. By concentrating similar radiological examinations together, initiatives for enhancing radiologists' reporting capacity would be implemented. For instance, packaging selected types of examinations for bulk outsourcing or cross-cluster reporting to increase service capacity could be considered. In addition, adoption of standardised structured reporting to improve quality, communication and efficiency should also be expedited.

Prioritisation of Implementation Plans

Short Term (< 3 years)

- Planning for a Central Ambulatory Imaging (CAI) centre to serve as a powerhouse to enhance overall capacity of ambulatory imaging services and provide designated imaging services which require concentration of expertise. It will serve as a hub for satellite ambulatory imaging (SAI) centres.
- With sufficient manpower as a prerequisite, establishment of a cluster-based SAI centre could be considered as a pilot.
- The development plans of other hospitals and clusters are to be reviewed to explore for opportunities for establishing SAI centres.
- The infrastructure for off-site reporting should be strengthened.
- The development and adoption of standardised structured reporting for selected imaging modalities is to be expedited under coordination of designated working group of COC (Radiology) in collaboration with other stakeholders.

Medium Term (3-5 years)

- More SAI centres will have been established at this stage.
- Pathways and mechanisms for accepting cross-cluster referrals should be explored and piloted at this stage to pave way for future connection of SAI centres to improve overall service capacity.
- Point-to-point service linkages between the SAI centres are to be created to enhance cross-cluster referrals to address pressure areas.
- New initiatives for capacity expansion such as bulk outsourcing or cross-cluster reporting are to be explored.

Long Term (6-10 years)

- The services of CAI centre and SAI centres are to be interconnected to create a hub-and-spoke network, with CAI centre serving as a central administrative key to bridge the gap of services among clusters. It is suggested that the senior radiographers and PACS administrators of CAI centre will take up the roles to coordinate traffic of image referrals, data transfer and reporting allocation of the network. The radiologist in-charge of the CAI centre will take the lead to steer high-level objectives related to ambulatory imaging services at the corporate level, such as monitoring the service gaps, maintaining productivity and sustainable development of the services.

Ambulatory Interventional Radiology Services

Current Services Arrangement

Interventional radiology utilises minimally invasive image-guided procedures to diagnose and treat diseases in nearly every organ system. It incurs less risk, less pain and less recovery time in comparison with open surgery, and thus is apt to be conducted in ambulatory mode. When stock-taking IR services in HA hospitals in 2019, COC (Radiology) has identified that more than 6,000 IR procedures per year could be converted to day services. They mainly involve low- and moderate-risk procedures. Common examples include central venous catheter insertion, diagnostic angiograms, drainage catheter exchanges and ablation of superficial organs.

Conventionally, most IR procedures are performed on inpatient basis with different phases of the workflow taken up by different clinical teams. In addition to making requests to the Radiology Departments, the referring clinicians are also responsible for assessing the patients, obtaining consents, providing procedural information and arranging post-procedural follow-ups. The patients are required to be admitted for overnight stay in the wards of the relevant clinical units for the IR procedures. The ward staff provide mostly general but only limited procedural-specific care to the patients. The IR teams are responsible for procedural operation and immediate pre-procedural care, but are seldom involved in assessing the clinical outcome and planning of subsequent management.

One of the challenges relating to the conventional IR model is the necessity of patients to be admitted as inpatients, adding burden to the already congested wards. Operation inefficiency is also a common occurrence, as the workflow often competes with other inpatient support. Wastage such as waiting for transfer of patients has reduced productivity and patient's satisfaction. In addition, the patient care is fragmented with sub-optimal coordination and lack of empowerment of IR teams to enhance patient care.

Lastly, the COVID-19 crisis reveals the need for implementing adaptive infection control measures in acute hospitals during disease outbreak. The high turnover of ambulatory IR patients in inpatient ward potentially causes difficulties in implementing effective infection control measures.

Proposed Service Model

At present, ambulatory IR services are at early phase of development in HA, but the service models and scope vary according to departmental-based protocols. It is proposed that re-design and standardisation of the service model for selected IR procedures be conducted to obviate admissions of patients and foster the participation of IR teams in the related clinical management. The objectives are to reduce hospital admissions, enhance efficiency by streamlining the workflow and improve quality of care.

The care pathways for all IR services start from referral of patients by clinicians to the Radiology Departments via GCRS. The referrals are then vetted by IR team of the respective hospitals or clusters to preliminarily separate them into those that are suitable for ambulatory mode and those which require admissions. Patients in the ambulatory IR model will be further classified into two groups based on risk-profile of the involved IR procedures. The first type involves low procedural risks, for which the entire processes starting from pre-procedural assessment to discharge could be completed in the Radiology Departments (e.g. exchange of indwelling drainage catheters). The second type involves moderate-risk procedures which require short post-procedure inpatient stay (e.g. ablation of thyroid nodules). Such wards could be day wards belonging to different clinical departments or comprehensive day wards operating under shared-care model.

Along the patient journey, ambulatory IR services involve multiple steps in the care pathway, including assessment, pre-procedural preparation, IR procedure, post-procedural monitoring care, pre-discharge evaluation, discharge, as well as follow-up visits. The aim of patient assessment is to evaluate for the presence of medical co-morbidities or social factors which may affect the appropriateness for ambulatory procedures. It is proposed that the format of assessment for ambulatory IR cases would be tailored to the procedural complexities, varying from scrutiny via simple checklist, screening by IR nurses or designated IR clinic led by radiologists. Pre-procedural preparation involves blood testing, fasting and pre-medication instruction, consent taking and issuing of admission slip would be undertaken. In most circumstances, the preparation and assessment of patients could be integrated into a one-stop visit to streamline the workflow.

In the post-procedural stage, the IR team will participate in patient management to identify and manage procedural complications, and to facilitate the discharge process. If short stay of patients in day wards or ambulatory care centres is required, the ward staff will provide general care and consult IR team when needs arise. Examples include sudden change of patients' conditions or issues relating to indwelling IR devices. Standardised discharge criteria supported with structured post-discharge instructions would be adopted to expedite the turnover of patients.

In selected cases, especially complex procedures or those requiring long-term clinical management, follow-up of patients in clinics led by the IR team or conjoint with clinical teams will be arranged. The purpose is to assess progress of the disease, provide multi-disciplinary assessment and to devise long-term clinical management plan.

The success of ambulatory IR services depends on the concerted efforts of IR nurses, IR radiologists and relevant clinical partners. Nurses are core members of IR procedures and play crucial role in pre-procedural care. The potential of IR nurses to act as service coordinator for effective communication between the IR team, clinical teams and patients should be considered. The IR radiologists take up the roles of conducting the IR procedures, decision making in post-procedural management and follow-up clinic consultation of patients. The clinicians and staff of the day wards and ambulatory care centres provide first-line monitoring and management of patients after IR procedures. Coordination and effective communication among the involved healthcare personnel is critical for satisfactory clinical outcome. Standardisation of management schemes and structured protocols will be developed to support clinical decision on various IR procedures. IR clinics will provide a good interface between clinical and IR teams to foster collaboration and successfully implement the management schemes.

Prioritisation of Implementation Plans

Short Term (< 3 years)

- In this period, COC (Radiology) will form designated Working Group on IR services to steer the practice alignment, staff training and development of manpower in relation to ambulatory IR services. Proposals on long-term manpower development for IR radiologists and nurses will be devised for sustainable service development. The IR Working Group will also develop consensus to align the types and specific protocols of IR procedures that would be conducted as ambulatory services.
- The specialty advisory group of radiology nursing will strengthen training of IR nurses in coordinating the ambulatory IR services and communication with stakeholders.
- Pathways of some low-risk IR procedures will be prioritised for early implementation as ambulatory IR in HA hospitals. As it is expected that the processes of the many low-risk procedures would be completed in the Radiology Departments, administrative mechanisms to streamline the patient flow by the Radiology Departments would be developed in this period. The clinical management schemes of the involved IR procedures would be aligned under the coordination of IR Working Group.
- A few HA hospitals will start to implement ambulatory IR services for moderate-risk procedures through collaboration with day wards. By the end of this period, it is expected that a few clusters would have commenced the related services on proviso there is sufficient manpower. A pilot should be conducted to evaluate the overall outcome. Their experience will be shared in the IR Working Group for progressive development of standardisation of workflow and management protocols. IR clinics will also be piloted for pre-procedural and follow-up consultation of patients. Their experience will be consolidated to prepare for up scaling of the service in HA.

Medium Term (3-5 years)

- At this stage, increasing number of low-risk procedures will be delivered as ambulatory services in HA hospitals, with the scope subject to the constraints in physical space and facilities of the Radiology Departments.
- For moderate-risk procedures, the workflow of most common procedures will have been consolidated. The IR Working Group will continue to explore expanding the service scope to commensurate with further development.
- It is probable that few clusters will have developed ambulatory care centres in this period. The IR teams of the respective Radiology Departments will pioneer implementation of ambulatory IR services under shared-care model in these settings.

Long Term (6-10 years)

- By the end of this period, it is expected that the hospital development projects will have addressed issues of space and facilities limitations to expedite the implementation of ambulatory IR services. Accordingly, most low-risk procedures will be conducted as ambulatory services in the Radiology Departments of HA hospitals.
- With further development of ambulatory wards in HA, ambulatory IR services for moderate-risk procedures under shared-care model will also be implemented in most clusters.

Strategic Direction 5
Optimise Key Enablers to Support Service Development and Implementation

Implementing the strategies will require key enablers, in particular, IT systems, manpower and other resources to facilitate the service development.

Strategy 5.1: To Promote the Implementation of Day Services by Optimising IT Systems

The identification of patients who receive day services is currently performed based on proxy rules. To better support ambulatory care services, the identification and "capturing" of day services should be explicit in the system. Moreover, a direct linkage between the booking and admission of patients for day services provision would further facilitate the operations of the day centres.

Enhancement of the CMS would also improve the workflow and care documentation of the day centres, and HA Go enhancements could improve the engagement of patients and better prepare them for their care journey.

Strategy 5.2: To Facilitate the Development of Day Services by Refining the Resource Allocation Mechanism

One of the key enablers to facilitate the implementation of day services will be manpower and financial resources. In the existing resource allocation mechanism in HA, relatively clear parameters for manpower provision exist for opening of inpatient beds and operating theatre sessions. However, manpower provision parameters for setting up and providing new day services are less clear.

It is suggested that resource allocation to day services should be considered at two levels:

1. Baseline resources should be provided for setting up day centres. The resources will include the baseline staff mix and resources for the daily operation of a general day centre, such as daily patient admission routines, vital signs monitoring, etc. The relevant resources requirement will be worked out by the subject officers and grades, in consultation with the Statistics & Data Science Department.

2. As an adjunct to the abovementioned baseline resources, additional resources will be provided for the services provided through additional day places per day bed or physical set-up. Day bed refers to the physical space requirement for the day service. The actual day services can be delivered via the use of physical set-ups, such as beds or recliners. It is expected that the turnover for each physical set-up will be different for different services. This turnover pattern of specific day services should be measured by a common indicator – day place as a capacity indicator for day services to be provided. COC/CCs will need to align service models across clusters to arrive at the number of day places per physical set-up for a particular day service. The alignment of service models and the resource requirement for specific day services across clusters will facilitate the endorsement of the resource allocation parameters for the service by senior management.

Strategic Direction 6
Develop Standardised Measures for Effective Monitoring of the Outcome of Day Services

Standardised measures of day services along the whole patient journey are essential to service performance monitoring and quality improvement in ambulatory care services. Currently in HA, a proportion of day services is provided in inpatient setting. There is no explicit indication on whether the services provided to patients in inpatient setting are day services. Instead, "day inpatients", classified out from inpatients by operational rules, is used as a proxy to day activities. Since the classification of day inpatients is merely based on source of admission and whether the patients are being discharged from hospital on the day of admission, day activities in inpatient setting can by no means be totally accounted through the counting of day inpatients. Without precise definition, the performance monitoring and quality improvement measures developed for day services will be undermined. To rectify this situation, IT systems for appointment booking and registration of inpatient admission need to be enhanced to allow clear indication of day services.

Strategy 6.1: To Facilitate the Development of Corporate-wide Standardised Measures by Enhancing Existing Admission and Booking Systems to Provide Clearer Indication of Patients Intended for Day Services

Upon successful implementation of the proposed IT enhancements, the workflow in appointment booking and admission of patients to hospitals intended to receive day services will be aligned across HA and integrated into the corresponding IT systems to allow direct identification of day activities in the inpatient setting. With the availability of domain-specific data, HA will then develop corporate-wide standardised measures and KPIs for various day services in ambulatory care through the engagement of relevant parties in service provision, service management, statistics and IT support. Development of KPIs needs to route through the prevailing KPI review mechanism by seeking endorsement from the HA Board. The developed measures and KPIs would be forwarded to the Committee on Official Statistics (CoOS) for endorsement as official statistics. Subject to the endorsement of CoOS, automation for official reporting in HA Management Information System and other relevant information platforms followed.

Strategy 6.2: To Devise Monitoring Parameters for Performance Monitoring and Future Service Planning

With the increasing implementation of day service model, it will be necessary to devise monitoring parameters to evaluate the implementation of these services. Data such as the length of stay for day services, inpatient services, proportion of a particular service being delivered via the day service model and others can be considered for performance monitoring and to inform future service planning.

Part 3

Looking Ahead

Implementation and Monitoring

How We Are Going to Realise the Strategic Service Framework

Prioritisation of Strategies

The Framework outlines the strategies and key enablers required to improve the service model and build up the system, to deliver more appropriate and effective ambulatory healthcare services to patients in HA over the next five to 10 years. With the concerted cross-disciplinary efforts at the corporate and cluster levels to steer the actualisation of this Framework, and to achieve continuous service improvement through monitoring and evaluation. The focus of this chapter of the Framework is on the corporate plan.

The prioritisation of service needs and the readiness of the programmes will be some of the major considerations during the implementation phase of the strategies. Some strategies could be delivered through better refinement of workflow and stakeholders collaboration without great implications on resources. Others require additional resource inputs, which will be sought through the HA annual planning process.

With the refinement of definition of ambulatory care services in HA, some alignments on the prevailing terminology for day services should be revisited for effective implementation and monitoring on development of ambulatory care services. Currently, some day activities are reported in the COR. For example, the capacity for providing services to patients attending GDHs and psychiatric day hospitals are expressed as "number of geriatric day places" and "number of psychiatric day places" respectively under COR. Services provided in day hospitals are captured and reported as "number of day attendances". While there will be clear scope and definition for day services to be developed under the Framework, it was recommended that the terminology for day services should be revisited to explore the alignment with the refined definition of ambulatory care services.

Table 5 summarises the corporate roadmap for strategy implementation.

Table 5. Corporate Roadmap for Strategy Implementation

Strategic Directions	Priority	Short Term (< 3 years)	Medium Term (3 to 5 years)	Long Term (6 to 10 years)
Definition **1. Refine the definition of ambulatory care services in HA**	Define ambulatory care services in HA			
	Advise on appropriate day services by COC/CCs			
Governance **2. Strengthen the governance and linkage of day services between corporate and clusters**	Establish regular reporting on day services between corporate and clusters			
Service Organisation **3. Enhance service organisation in HA**	Follow role delineation of hospital-based and cluster-based day services in CSPs			
	Explore territory-based ambulatory care centres			
Service Model **4. Develop care pathways for day services to reduce avoidable admissions**	Develop respective care pathways by COC/CCs			
	Enhance IT systems for tele-radiology and remote reporting to facilitate the workflow			
Enablers **5. Optimise key enablers to support service development and implementation**	Conduct planning and development of IT systems enhancement			
	Develop resource allocation parameters			
	Develop other enablers (e.g. equipment and facilities, accessibility) to support delivery of day services			
Performance Monitoring **6. Develop standardised measures for effective monitoring of the outcome of day services**	Ensure corporate-wide data standardisation and automation for reporting			
	Review refinements of key activity data in COR and KPIs based on refined definition and data-capturing systems			
	Develop performance indicators			

Monitoring

The implementation of this Framework is a continuous process of development and improvement of our ambulatory care services. Monitoring the process is the key to ensuring proper implementation of the strategies and effective use of resources. The success of the strategies in achieving the goals of service improvement will be evaluated. The monitoring will be carried out at several levels, as follows:

- Service deliverables tied in with resources bidding through the HA annual plan process will be monitored through the existing mechanism.
- Progress on the key implementation milestones mapped out in the implementation plans of the Framework will be regularly reviewed over the next five to 10 years at both corporate and cluster levels.
- Quality indicators will be developed for benchmarking, accountability reporting and continuous quality improvement of the overall ambulatory care services in HA.

Conclusion

Consistent with the global phenomenon, HA is now experiencing a dramatic increase in healthcare services demand driven by a growing and ageing population and the rising prevalence of chronic diseases. The current over-reliance on hospital-based model is unsustainable from the patient, workforce and financial perspectives. A change in service model to an ambulatory care services model should be encouraged with the aim to reduce avoidable admissions.

Our vision for HA's ambulatory care services is to provide appropriate and effective ambulatory healthcare services to patients in HA. The care should be patient-centred, delivered in the right setting and at the right timing in an effective manner.

This Framework describes our directions and strategies for achieving this vision. With refinement of definition, enhancements in the governance and service organisation, development and implementation of new workflows and ambulatory care services models, as well as provision of key enablers and strong data-driven performance monitoring, we strive to achieve better ambulatory care services for our patients in the coming five to 10 years.

To successfully implement this Framework, the concerted efforts from HA Head Office, cluster management and our healthcare professionals across specialties and disciplines are of utmost importance. We will work together to achieve our vision for HA's ambulatory care services for our patients.

Part 4

Abbreviations and Appendices

Abbreviations

A&E	Accident and Emergency
CAI	Central Ambulatory Imaging
CC	Central Committee
CMS	Clinical Management System
COC	Coordinating Committee
CoOS	Committee on Official Statistics
COR	Controlling Officer's Report
COVID-19	Coronavirus Disease 2019
CSP	Clinical Services Plan
CT	Computer Tomography
ECHO	Echocardiogram
GCRS	Generic Clinical Request System
GDH	Geriatric Day Hospital
GH	Grantham Hospital
HA	Hospital Authority
HF	Heart Failure
HFrEF	Heart Failure with Reduced Ejection Fraction
IR	Interventional Radiology
IT	Information Technology
KCC	Kowloon Central Cluster
KPI	Key Performance Indicator
MRI	Magnetic Resonance Imaging
MSDC	Medical Services Development Committee
NHS	National Health Service
NT-proBNP	N-terminal pro-brain natriuretic peptide
OECD	Organisation for Economic Co-operation and Development
PACS	Picture Archiving and Communication System
SAI	Satellite Ambulatory Imaging
SOPC	Specialist Outpatient Clinic
TACC-HF	Transitional Ambulatory Care Centre for Heart Failure
TKOH	Tseung Kwan O Hospital
UK	United Kingdom

Appendices

Appendix 1: Taskforce on the Strategic Service Framework for Ambulatory Care Services

Terms of Reference

- To define ambulatory care services in HA
- To identify priority areas and develop strategies to enhance HA's ambulatory care services
- To advise on the future service model(s) and key enablers of HA's ambulatory care services to guide the service development over the next five to 10 years
- To formulate a Strategic Service Framework for Ambulatory Care Services for considerations by the HA Task Group on Sustainability, MSDC and the Directors' Meeting

Membership (as at January 2022)

Co-chairs	
Dr Libby LEE	Director (Strategy & Planning), HA Head Office
Dr K T TOM	Cluster Chief Executive, Kowloon East Cluster / Hospital Chief Executive, United Christian Hospital
Members	
Dr Jonathan CHAN	Cluster Director (Information Technology / Information System) & Deputy Service Director (Quality & Safety), Hong Kong East Cluster / Consultant (Medicine), Pamela Youde Nethersole Eastern Hospital – *Representative from Hong Kong East Cluster*
Dr T W LAI	Deputy Hospital Chief Executive (Clinical Services), Princess Margaret Hospital / Cluster Service Coordinator (Surgery), Kowloon West Cluster / Chief of Service (Surgery), Princess Margaret Hospital & North Lantau Hospital – *Representative from Kowloon West Cluster*
Dr Steven WONG	Information Security & Privacy Officer, Kowloon Central Cluster / Deputy Hospital Chief Executive (Corporate Affairs) & Consultant (Anaesthesiology & Operation Theatre Service), Queen Elizabeth Hospital – *Representative from COC (Anaesthesiology)*

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Dr Johnny CHAN	Deputy Hospital Chief Executive (Professional Service) & Chief of Service (Medicine) & Cluster Service Coordinator (Medicine), Queen Elizabeth Hospital – *Representative from COC (Internal Medicine)*
Dr K H KWOK	Chief of Service (Surgery), Queen Elizabeth Hospital – *Representative from COC (Surgery)*
Dr Wilson LI	Consultant (Orthopaedics & Traumatology), Queen Elizabeth Hospital – *Representative from COC (Orthopaedics & Traumatology)*
Dr Ashley CHENG	Cluster Clinical Coordinator (Health Informatics), Kowloon West Cluster & Princess Margaret Hospital / Chief of Service (Clinical Oncology), Kowloon West Cluster – *Representative from COC (Clinical Oncology)*
Dr N T CHEUNG	Head of Information Technology & Health Informatics, HA Head Office (from 28 June 2021)
Dr Frank CHAN	Chief Manager (Integrated Clinical Performance), HA Head Office (up to 31 March 2021)
Dr Larry LEE	Chief Manager (Integrated Clinical Services), HA Head Office (from 12 April 2021)
Dr Ian CHEUNG	Chief Manager (Cluster Performance), HA Head Office (up to 31 August 2021)
Dr Michael WONG	Chief Manager (Cluster Performance), HA Head Office (from 1 September 2021)
Dr Flora TSANG	Chief Manager (Strategy, Service Planning & Knowledge Management), HA Head Office
Dr Jackie CHAU	Senior Manager (Strategy & Service Planning), HA Head Office – *Secretary* (up to 31 March 2021)
Ms Mimi CHAU	Manager (Strategy & Service Planning), HA Head Office – *Secretary* (from 13 September 2021)

Appendix 2: Working Group on Definition, Governance and Monitoring

Terms of Reference

- To advise on the governance, organisation and coordination of HA's ambulatory care services
- To advise on the definition of HA's ambulatory care services to facilitate care delivery
- To advise on the key enablers (e.g. system enhancement) of HA's ambulatory care services
- To advise on the strategies for performance monitoring of HA's ambulatory care services
- To recommend on strategies and the above to the Taskforce for considerations

Membership (as at May 2021)

Co-chairs	
Dr Flora TSANG	Chief Manager (Strategy, Service Planning & Knowledge Management), HA Head Office
Dr Ian CHEUNG	Chief Manager (Cluster Performance), HA Head Office
Members	
Dr Carmen HO	Consultant (Medicine), Queen Mary Hospital & Tung Wah Hospital / Consultant in-charge (Rheumatology & Clinical Immunology Unit), Grantham Hospital – *Representative from Hong Kong West Cluster*
Dr C H LAU	Consultant (Surgery), Queen Elizabeth Hospital – *Representative from Kowloon Central Cluster*
Dr T W AU YEUNG	Consultant (Medicine & Geriatrics), Pok Oi Hospital – *Representative from New Territories West Cluster*
Dr Axel SIU	Consultant (Accident & Emergency), Ruttonjee & Tang Shiu Kin Hospitals – *Representative from COC (Accident & Emergency)*
Dr P W YAM	Chief of Services (Medicine & Geriatrics), Tuen Mun Hospital – *Representative from COC (Internal Medicine)*
Dr Frances CHEUNG	Chief of Services (Surgery), North District Hospital – *Representative from COC (Surgery)*
Dr Nai Man LAM	Chief of Service (Ophthalmology), Hong Kong Eye Hospital – *Representative from COC (Ophthalmology)*

Members	
Dr Vivien CHUANG	Chief Manager (Infection, Emergency & Contingency), HA Head Office
Dr Sara HO	Chief Manager (Patient Safety & Risk Management), HA Head Office
Dr Joanna PANG	Chief Medical Informatics Officer, HA Head Office
Mr Alan CHEUNG	Chief Health Statistician, HA Head Office
Dr Paulina CHOW	Senior Manager (Strategy & Service Planning), HA Head Office – *Secretary*

Appendix 3: Working Group on Service Model

Terms of Reference

- To advise on the development of future service models for HA's ambulatory care services
- To develop one prototype each for programme-based and function-based care to illustrate the Working Group's recommendations
- To recommend on the proposed service models to the Taskforce for considerations

Membership (as at May 2021)

Co-chairs	
Dr Flora TSANG	Chief Manager (Strategy, Service Planning & Knowledge Management), HA Head Office
Dr Tony HA	Chief Manager (Primary & Community Services), HA Head Office
Members	
Dr Sunny WONG	Deputy Chief of Services (Medicine & Geriatrics) , United Christian Hospital – *Representative from Kowloon East Cluster*
Dr Chi Hung CHENG	Cluster Coordinator (Major Incident Control Centre), New Territories East Cluster / Deputy Hospital Chief Executive (Operations) 1 & Chief of Service (Accident & Emergency), Prince of Wales Hospital – *Representative from New Territories East Cluster*
Dr Dione SZETO	Chief of Service (Anaesthesia & Operating Theatre Services) & Service Director (Ambulatory Surgery Services), Tseung Kwan O Hospital – *Representative from COC (Anaesthesiology)*
Dr Jenny LEUNG	Cluster Coordinator 2 & Chief of Service (Medicine & Geriatrics) & Head of Division (Endocrinology & Diabetes), Ruttonjee & Tang Shiu Kin Hospitals – *Representative from COC (Internal Medicine)*
Dr K F CHEUNG	Coordinator (Clinical Services) & Chief of Service (Surgery), Yan Chai Hospital – *Representative from COC (Surgery)*
Dr Peter KU	Chief of Service (Ear, Nose & Throat), United Christian Hospital & Tseung Kwan O Hospital – *Representative from COC (Ear, Nose & Throat / Otorhinolaryngology)*
Dr Paulin MA	Consultant (Obstetrics & Gynaecology) & Coordinator (Quality & Safety), Queen Mary Hospital – *Representative from COC (Obstetrics & Gynaecology)*

Members	
Dr Y C WONG	Deputy Hospital Chief Executive, Tuen Mun Hospital / Consultant (Radiology & Nuclear Medicine), Tuen Mun Hospital & Pok Oi Hospital & Tin Shui Wai Hospital – *Representative from COC (Radiology)*
Ms Vivian CHAN	Manager (Nursing) / Chief Nursing Officer, HA Head Office – *Representative from Nursing Grade*
Mr Daniel LO	Chief Manager (Allied Health), HA Head Office – *Representative from Allied Health Grade*
Dr K H LAU	Chief Manager (Quality & Standards), HA Head Office
Dr Linda YU	Chief Manager (Clinical Effectiveness & Technology Management), HA Head Office
Dr Paulina CHOW	Senior Manager (Strategy & Service Planning), HA Head Office – *Secretary*

Appendix 4: List of Committees Involved in the Briefings on the Strategic Service Framework for Ambulatory Care Services

1. COC (Accident & Emergency)
2. COC (Anaesthesiology)
3. COC (Clinical Oncology)
4. COC (Ear, Nose & Throat / Otorhinolaryngology)
5. COC (Internal Medicine)
6. COC (Obstetrics & Gynaecology)
7. COC (Ophthalmology)
8. COC (Orthopaedics & Traumatology)
9. COC (Psychiatry)
10. COC (Radiology)
11. COC (Surgery)
12. COC – Grade (Dietetics)
13. COC – Grade (Nursing)
14. COC – Grade (Occupational Therapy)
15. COC – Grade (Pharmaceutical Services)
16. COC – Grade (Physiotherapy)
17. CC (Cardiac Service)
18. CC (Palliative Care)
19. CC (Rehabilitation Services)
20. CC (Stroke Service)
21. Central Renal Committee
22. Geriatrics Subcommittee
23. Patient Advisory Committee

Enquiry:

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