

CLINICAL SERVICES PLAN for the New Territories East Cluster



North District Hospital

Tai Po Hospital

Alice Ho Miu Ling Nethersole Hospital

New Territories East Cluster HOSPITALS

Cheshire Home, Shatin

Bradbury Hospice

Shatin Hospital

Prince of Wales Hospital



NTTEC

The logo for NTTEC features the letters 'N', 'T', 'E', and 'C' in a light gray, sans-serif font. The letter 'T' is positioned between the 'N' and the first 'E'. A vertical column of seven colored dots is placed between the 'T' and the second 'E'. The dots, from top to bottom, are yellow, green, blue, magenta, teal, red, and orange.

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Foreword by Chairman

The Hospital Authority is carrying out intensive planning for the second phase redevelopment of Prince of Wales Hospital, which has been providing comprehensive quality healthcare services and serving as a teaching hospital for over 30 years. We would like to take this opportunity to augment and modernise the hospital's facilities by incorporating purpose-built infrastructures. The improvement would enable PWH to unleash its full potential in serving our patients in the New Territories East Cluster.

The first step in the planning exercise is this Clinical Services Plan drawn up by the New Territories East Cluster in collaboration with the Head Office that sets out the vision of the frontline healthcare professionals for the Cluster's future service development. This is in keeping with the principle of "function before form" that the Hospital Authority has adopted for the planning of major capital projects. The strategies and service models of this Plan describe the clinical functions that need to be supported by appropriate infrastructure across different healthcare facilities within the Cluster, which will be translated into relevant hospital and clinic designs in the subsequent capital planning stage. Accordingly, this Plan will guide all the capital projects within the Cluster for many years to come, not only for Prince of Wales Hospital, but also in the future expansion of North District Hospital and Alice Ho Miu Ling Nethersole Hospital, the refurbishment of other hospitals, and the development of Community Health Centres.

I believe healthcare services in the New Territories East Cluster will take to a new height with the innovative service models mapped out in the Clinical Services Plan. I am grateful for the immense support from the HA Board, Hospital Governing Committee members, and colleagues from the Cluster and the Medical Faculty of the Chinese University of Hong Kong in its development and look forward to the participation of all in bringing the Plan into fruition.



Prof John C Y LEONG

Chairman
Hospital Authority

Foreword by Chief Executive

The Clinical Services Plan for the New Territories East Cluster epitomises the strong commitment and concerted efforts of our healthcare professionals across disciplines and specialties in bringing to our patients high quality and patient-centred care. Outlined in the Plan are new service models developed by our dedicated Cluster colleagues to align and optimise the provision of different clinical services so as to better meet the growing and changing healthcare needs of the local population.

Moreover, with the strong presence of the Prince of Wales Hospital as a university hospital, opportunity is taken in this Clinical Services Plan to develop the New Territories East Cluster into an academic health science network. Alongside clinical services, all the hospitals in the Cluster will be participating in the realms of teaching, training and research in the pursuit of clinical excellence and advancement. As the Cluster progresses towards building itself into a teaching cluster, our long-standing partnership with the Faculty of Medicine at the Chinese University of Hong Kong will deepen, and the solidarity among different stakeholders in the Cluster strengthen.

My gratitude goes to my fellow colleagues, our academic partners, and members of the Hospital Governing Committees for their invaluable contributions to the formulation of this Plan. The New Territories East Cluster has come out of the formulation process stronger and more cohesive. It is with this renewed determination and enthusiasm that the strategies in the Plan will be translated into better and more efficient healthcare services for the local community.



Dr P Y LEUNG

Chief Executive
Hospital Authority

Preface

Jointly formulated by the New Territories East Cluster and the Strategy and Planning Division of the Head Office, the Clinical Services Plan for the New Territories East Cluster delineates the aspirations of the clinical staff and other stakeholders in transforming the ways that services are organised and provided in the Cluster. All levels of healthcare professionals in the Cluster have participated in and contributed to the development of the Plan together with our academic partners from the Faculty of Medicine at the Chinese University of Hong Kong. They have gone through several rounds of discussion, and a holistic approach was taken in charting out the future service directions.

The hallmark of the transformation is a new emphasis on ambulatory care and multi-disciplinary care of patients in combined clinical programmes. Besides re-engineering the workflow and clinical pathways, a comprehensive view is also taken to cover different aspects of the patient journey, ranging from hospital to primary care and to community care. The collective aim is to ensure that patients are cared for in a setting that is most appropriate and best suited for their needs.

Also in the Clinical Services Plan are renewed focuses on cross-hospital collaboration and the development of cluster-based services, which will bring about optimal alignment of services and standards across the Cluster, as well as facilitating more flexible and efficient deployment of manpower and facilities in meeting the immense service demand faced by the Cluster.

We wish to express our heartfelt appreciation to all colleagues, Chairpersons and members of the Hospital Governing Committees and academic partners who have dedicated their time and efforts to developing this Plan. In particular, we would like to thank the Chairs, Co-chairs and members of the Clinical Work Groups for their pivotal contributions in shaping the service models. Last but not least, our appreciation goes to members of the Advisory Panel for their staunch support and guidance throughout the formulation of the Plan.



Dr C T HUNG

Cluster Chief Executive, New Territories East Cluster /
Hospital Chief Executive, Prince of Wales Hospital



Dr S V LO

Director, Strategy & Planning Division,
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Executive Summary

OVERVIEW

The Clinical Services Plan (CSP) for the New Territories East Cluster (NTEC) maps out the Cluster's clinical strategies and future service directions for meeting the long-term healthcare needs of the community, as well as serves as a guide in the subsequent planning stages for the redevelopment of Prince of Wales Hospital (PWH) and other Cluster hospitals. It has been formulated through a highly interactive and broad engagement process involving a wide range of stakeholders from the Cluster as well as the Faculty of Medicine of the Chinese University of Hong Kong (CUHK).

Aiming to become an academic health science network, NTEC strives to improve the quality of services in terms of accessibility, efficiency, safety and standard of care along the patient pathway by integrating clinical services, research and training across different disciplines. There is a consensus in the Cluster on the following overarching strategies:

- (i) Provision of quality district hospital services to each district covered by NTEC;
- (ii) Adherence to the "localise where possible and centralise where necessary" principle in service provision;
- (iii) Integration of services across the continuum of care; and
- (iv) Fostering a culture of inquiry and innovation.

The strategies and recommendations in the CSP reflect the concerted efforts and collective wisdom of the NTEC staff in their commitment to optimise and transform the way that services are organised in the Cluster. It will help in managing the rising service demand and ensuring more efficient delivery of services, while keeping NTEC at the forefront of international developments in both health services and health sciences for the coming decades.

BACKGROUND

NTEC is one of the only two clusters in the Hospital Authority (HA) that manage a teaching hospital. It is also the largest cluster in HA in terms of the geographical coverage of its catchment districts. The healthcare facilities of the Cluster are located in the Sha Tin, Tai Po and North districts which have a combined population that accounts for around 17.5% of the overall Hong Kong population.

PWH is the Cluster's acute regional hospital as well as a teaching hospital of the CUHK Faculty of Medicine. It has undergone a major redevelopment project (Phase 1) with the construction of a new building, which was completed in 2010. In the 2014-15 Budget Speech, the Government indicated that planning for the Phase 2 redevelopment of PWH would commence. Meanwhile, future expansion of its other two acute hospitals, North District Hospital (NDH) and Alice Ho Miu Ling Nethersole Hospital (AHNH), amongst others, has also been catered for; and a Community Health Centre (CHC) is being planned for the North District.

Hence, HA commenced in May 2014 to develop a CSP for NTEC to map out the Cluster's clinical strategies and future service directions for meeting the long-term needs of the community and to facilitate and guide the redevelopment of PWH and other Cluster hospitals in the years to come.

PROJECT GOVERNANCE AND METHODOLOGY

The project was overseen by a Project Committee jointly chaired by the Cluster Chief Executive of NTEC and the Director of Strategy and Planning from the Head Office (HAHO), with members including NTEC clinicians and senior management, chairpersons of the PWH, AHNH and NDH Hospital Governing Committees, as well as the Dean of the CUHK Faculty of Medicine. The Project Committee regularly reported to the Directors' Meeting (DM) which provided the overall steer for the project.

To carry out and coordinate the project, a Planning Team was formed with members from both the NTEC and HAHO. The Planning Team was supported by an experienced overseas healthcare service planner engaged as an external consultant to carry out the consultation process and provide input to the project. A work group comprising the Chiefs of Service in NTEC was also established to deliberate and align service proposals in developing the CSP. In addition, an Advisory Panel was formed to review and comment on the observations and recommendations made by the external consultant, and to provide advice to the Project Committee.

The CSP was developed through a structured process involving a wide range of stakeholders and clinical staff from NTEC and the CUHK Faculty of Medicine. The process included "vertical specialty-based consultation" via questionnaire survey and face-to-face interviews with frontline healthcare professionals, followed by "horizontal programme-based consultation" via 15 multi-disciplinary, cross-hospital and cross-specialty Clinical Work Groups (CWGs) which developed proposals on the future development of clinical programmes. Proposals of the CWGs were presented and deliberated at a one-day seminar which concluded this phase of consultation.

This draft NTEC CSP was made available to 500 key stakeholders between 11 June and 15 July 2015 to solicit feedback and suggestions. They included clinical and management staff from the Cluster, the Hospital Governing Committees of the NTEC hospitals, as well as senior executives from HAHO and the CUHK Faculty of Medicine. Responses received were carefully reviewed and deliberated by the Project Committee, and were used as a basis to refine the CSP.

Following formulation, the NTEC CSP was submitted to the DM for endorsement, followed by the Medical Services Development Committee for approval.

KEY CHALLENGES

During the consultation process, four major challenges were identified and taken into consideration in developing the CSP.

First, **the demand for healthcare services in NTEC is expected to increase significantly, arising from the huge and rapid population growth and ageing** in the catchment districts of the Cluster, particularly in the North District where the North East New Territories New Development Areas proposed by the Government would result in a population growth of over 70% by 2031. The growth rates of elderly population in its catchment districts are also significantly higher than the Hong Kong average.

Second, the Cluster is experiencing **various service gaps in meeting the needs of local residents**, including an absence of emergency surgical services at AHNH, inadequate acute psychiatric service at PWH, and a lack of extended care facilities in the North District, which result in frequent transfer of patients between hospitals in the Cluster and difficulty for patients with less complex conditions to receive continuity of care in the same district.

Third, **variations in the model and organisation of services** were observed among NTEC hospitals, which were often accompanied by suboptimal coordination and collaboration among the service units, and differences in standards of care.

Furthermore, the three acute hospitals in NTEC have **different extent of access block issues, which reflect system and clinical flow issues in addition to bed shortage**, such as problems relating to admission policy and patient flow across different settings, inadequate support from step-down care, and over-reliance on in-patient care.

STRATEGIC FRAMEWORK

Taking into account the challenges faced by the Cluster and building on its strengths and potentials, an overall framework was formulated to guide the development of clinical strategies and service directions. Its underlying principles and the strategies that resulted are complementary to each other in addressing the key challenges. The strategic framework and some of the key recommendations are as follows:

- (i) **Provision of quality district hospital services to each district covered by NTEC**, with a view to ensuring that basic secondary care services are available in each of the catchment districts to meet the healthcare needs of the local community, while helping to reduce avoidable patient transfers among hospitals in the Cluster. This includes filling the service gaps through re-establishing emergency surgical services at AHNH, developing convalescent and rehabilitation services in the North District, and strengthening acute psychiatric in-patient service at PWH.
- (ii) **Adherence to the “localise where possible and centralise where necessary” principle in service provision**, so that while most secondary care services are provided through localised care, specialised services that require concentration of expertise to ensure the quality of service for a critical mass of cases will be centralised. In this regard, the provision of neurosurgery, cardiothoracic surgery, major trauma, and obstetric services in NTEC will continue to be centralised at PWH.
- (iii) **Integration of services across the continuum of care** through the development of new service models with an emphasis on multi-disciplinary care and ambulatory care, so as to align service standard, better meet the complex healthcare needs of a growing number of elderly patients as well as to facilitate a smooth transition among different levels of care, including from Accident and Emergency (A&E) departments to the next level of care and transitional care from in-patient to community care. This includes developing hospital-based ambulatory care centres (ACCs), and adopting the “geriatricians at hospital’s front door” model to provide timely geriatric specialist assessment at the A&E departments so that older patients can be triaged to appropriate level of care besides acute hospital admission.
- (iv) **Fostering a culture of inquiry and innovation** by developing the system of NTEC healthcare facilities into an academic health science network, leveraging on its partnership with CUHK Faculty of Medicine and incorporating teaching and research in the roles of all the hospitals in the Cluster, with a view to keeping the Cluster at the forefront of international developments in both health services and health sciences.

CLINICAL SERVICE PROGRAMMES

Based on the strategic framework, the 15 CWGs had formulated the following service models for their programmes, which are outlined below according to the three focus areas of the respective CWGs: (i) systems and processes, (ii) clinical programmes, and (iii) teaching, training and research.

Systems and Processes

Emergency Admissions

The input-throughput-output model of “reducing admissions”, “maximising the efficiency of in-patient service” and “facilitating discharge” aims to tackle access block in the Cluster by addressing factors impacting on patient journey. The CWG recommends adopting the “geriatricians at hospital’s front door” model where geriatricians support the assessment and treatment of elderly patients at the A&E departments. Through timely evaluation and intervention, avoidable acute admissions can be reduced for older patients. For example, suitable patients can be discharged home from the A&E departments with referral to community care services. For patients who have enrolled in the end-of-life care programme, they can be admitted directly to convalescent wards without having to go through the acute wards. Other recommended strategies include cross-specialty input to decision-making in emergency medicine ward for patients who can be managed there within 24 to 48 hours, streamlining the emergency medical admission workflow, strengthening support for early discharge, and the management of elective cases at ACCs for consultations, diagnostic services and interventions so as to reduce the reliance on in-patient services.

Ambulatory and Community Care Services

The provision of ambulatory care service can reduce avoidable admissions and thus the potential risks during the course of hospitalisation, such as infection. In NTEC, ambulatory care will be a one-stop service on a multi-disciplinary basis, so patients could obtain medical out-patient services, services from allied health disciplines as well as investigations that are organised to take place within a day. The CWG recommends establishing hospital-based ACCs. Suitable patients can be referred from A&E department to the ACC for appropriate care, including the treatment of minor injuries or procedures such as pleural tap, thus reducing avoidable hospital admission. The ACC will also help to strengthen chronic disease management, especially for patients who require complex case management such as poorly controlled diabetes. Patients will be stratified according to their risks assessment. Less complicated conditions will be managed in CHCs. The overall aim is to keep patients healthy in the community.

Integrated Elderly Care Services

NTEC plans to promote functional independence and quality of life of older patients by strengthening elderly patient care, fostering an elderly-friendly environment and aligning good practices in the care of older patients across the whole Cluster. The care is to be person-centred, proactive, timely and coordinated to ensure continuity and proper integration of multi-disciplinary services, including collaboration of different specialists. For example, collaboration between A&E departments and geriatricians is proposed in the "geriatricians at hospital's front door" model. Suitable elderly patients can be discharged from A&E after being assessed and treated by geriatricians. Acute admission is only reserved for those who cannot be managed in the community with the support of community outreach services team. For patients admitted to non-medical specialties, surgical and orthopaedic wards in particular, geriatric liaison service will be provided to facilitate recovery from the acute illness and speed up rehabilitation.

Cluster Surgical Services

The surgical services in NTEC will form a network under a single management structure, with multi-disciplinary support such as diagnostic services. Emergency coverage for sub-specialties with sizable caseload will adopt a cluster-based approach. PWH will remain as the major trauma centre, while emergency general surgical services are recommended to commence at AHNH by phases. Also, day surgical services will be provided in the acute hospitals, with AHNH having a stronger presence in day and same day surgical procedures.

Peri-operative and ICU Services

The Cluster plans to adopt a cluster-based approach for peri-operative and ICU services in enhancing multi-disciplinary collaborations, aligning the standard of care, and establishing their governance structures.

(i) Peri-operative Services

The modern peri-operative model is recommended with the provision of integrated same-day pre-operative assessment and patient education, coordinated hospital admission and operation, and efficient post-operative care. The practice in NTEC can be enhanced through streamlined assessment of patients with complex conditions, standardised peri-operative care plans and equipment, as well as linkage of information systems among the hospitals to facilitate seamless management of patients within the Cluster, while also minimising patient transfer or duplication of service. Adoption of the peri-operative service model among surgical specialties is also recommended.

(ii) ICU Services

Each ICU in NTEC will be supportive to meet the development and service demands of its own hospital, while collaboration among them is essential. The CWG recommends increasing cooperation and standardisation among the three ICUs to enhance efficiency, as well as a structured system for inter-hospital referrals with well-defined clinical pathways and coordination.

(iii) **Pain Medicine**

A formal acute pain service is recommended at acute hospitals in the Cluster, while chronic pain service will be organised as cluster-based service. Patients with complex pain conditions could receive interventional services as well as cognitive therapy, managed by an integrated multi-disciplinary pain team using an individualised case management approach, where appropriate. Ambulatory integrated care for chronic pain will be provided at the ACC at AHNH, with satellite pain services at the other two acute hospitals.

Clinical Programmes

Musculoskeletal Services

An integrated, multi-disciplinary, patient-centred musculoskeletal service throughout the continuum of care is recommended, with emphasis on acute rehabilitation and integrated ambulatory care. This cluster-wide co-care model promotes proactive and early assessment and management as well as early discharge planning, with inputs from experienced team of orthopaedic specialists, geriatricians and allied health professionals including medical social workers. The three acute hospitals will manage the orthopaedic patients during the acute phase, while the majority of cluster-based orthopaedic rehabilitation service will be located at TPH.

Cancer Services

Cancer services will be provided in an ambulatory setting where appropriate. The CWG recommends a multi-disciplinary, shared care model for all major cancer types to provide integrated, holistic and personalised care throughout the patient journey. The model will be supported by cluster-wide management guidelines and protocols for common cancers for ensuring quality of care among Cluster hospitals, and also cancer case managers as service coordinators for patients to facilitate collaboration across specialties and smooth transition across different care settings. In view of the growing service demand, the CWG recommends that multi-disciplinary clinic and chemotherapy service shall be provided in both PWH and NDH.

Kidney Services

Care for patients with chronic kidney disease will entail a coordinated care pathway according to the severity of the disease and will involve professionals in hospitals and the community. Cross-specialty collaboration and multi-disciplinary care for kidney services are recommended by accommodating nephrology and urology together in shared facilities such as out-patient clinic, in-patient ward, and education and research area. The CWG also recommends AHNH to become NTEC's ambulatory urology centre, while providing short-stay service in the short-to-medium term and also Urology ward, with 24-hour emergency services in the long run.

Gastroenterology and Hepatobiliary Surgery Services

Gastrointestinal (GI) physicians, radiologists and surgeons will collaboratively provide disease-specific diagnostic and therapeutic services, such as endoscopy, to patients with GI and liver diseases. The CWG recommends shared facilities between physicians and surgeons for cross-specialty collaboration in decision-making and experience sharing, while also facilitating one-stop service for patients.

Heart and Lung Services

An integrated, cluster-based cardiac service will be provided by a cross-specialty “heart team” of cardiologists, cardiothoracic surgeons and cardiac anaesthesiologists for collective assessment and care planning. Primary percutaneous coronary interventions (PCI) for ST-elevated acute myocardial infarction will be provided at PWH, targeting at a 24-hour service. Cardiothoracic surgery will be concentrated at PWH. Services for high volume chronic respiratory diseases, in contrast, will be provided at district level for its vast demand. Pulmonary rehabilitation will also be localised.

Neuroscience Services

A clinical neuroscience service for NTEC shall be set up at PWH for integrated management of patients with all neurological diseases. Neurosurgical service will continue to be provided at PWH. The Cluster plans to expand the coverage of cluster-based thrombolysis service to AHNH and NDH.

Mental Health Services

A personalised mental health service shall be provided through a multi-disciplinary and community-based approach. For patients with mental health issues requiring hospital care, the CWG recommends time-limited psychosocial interventions by a multi-disciplinary team in a therapeutic environment with tranquility. The community support for psychiatric patients will also need to be strengthened, especially those with common mental disorder, through collaboration with community partners. There is an urging need to set up facilities at PWH to support acute in-patient psychiatric assessment.

Obstetrics and Neonatal Services

The obstetric and neonatal service in NTEC is organised as a cluster-based service. One large obstetric and neonatal unit will be located at PWH to support in-patient care, while ante-natal and post-natal obstetric support will be provided in out-patient and day care settings. AHNH will continue to provide satellite neonatal service to cater for minor neonatal problems.

Pathology and Radiology Services

Pathology and Radiology are essential supporting services to many clinical services in the Cluster. For Pathology, most of the services will be supported by PWH for 24-hour specialist coverage while the two district general hospitals are to have on-site microbiology laboratory, supported by automation in the laboratories. Improvement to the blood bank and enhancement to the rapid response laboratory at AHNH are also recommended to support the progressive re-establishment of emergency surgical services at the hospital. For Radiology, a Cluster Service Director will coordinate the individual imaging units at PWH, AHNH and NDH to provide quality service to each district. Moreover, one-stop imaging service in collaboration with respective clinical teams is also important to support the ambulatory care services that will be developed in the Cluster.

Teaching, Training and Research

Education, Training and Research

The CWG recommends fostering a culture of inquiry, teaching and innovation throughout the Cluster hospitals, thereby enhancing the status of NTEC as an academic health science network which aims to integrate and excel in all three aspects. Such infrastructure and activities can be arranged as a core at PWH which will serve as the hub of the network, whereas satellite units will be built in the other NTEC hospitals according to their clinical service provision model and clinical excellence. Facilities should be designed with a coherent theme of encouraging interactions and collaboration of users, with teaching, training and research integrated into clinical areas.

ROLE DELINEATION

The delineated roles of the hospitals support the Cluster's development into an academic health science network. As part of the network, all the NTEC hospitals shall participate and strengthen their roles in teaching and research.

PWH will continue to serve as an acute regional hospital and the tertiary referral centre for NTEC, particularly for centralised services such as neurosurgery, cardiothoracic surgery and major trauma service. It will also serve as the hub of the academic health science network, offering support to the service development of other Cluster hospitals and taking a leading role in enhancing the standard and quality of care delivered at NTEC.

Shatin Hospital (SH) will continue to provide convalescent, rehabilitation and psychiatric in-patient services, while also offering specialist geriatric care and palliative care services.

The service profiles of AHNH and NDH will be enhanced to function as acute district general hospitals, to provide emergency care and elective services of general specialties to their respective districts. In addition, AHNH will develop into the Cluster's designated ambulatory care and short-stay centre, while its emergency surgical services will be re-established.

Tai Po Hospital (TPH) will continue its existing role as an extended care hospital, particularly in its provision of gazette psychiatric ward, and specialist service in orthopaedic rehabilitation for the whole Cluster. It is recommended for TPH and AHNH to amalgamate clinically and managerially, so as to improve the continuum of care and patient flow between these two neighbouring hospitals.

Cheshire Home, Shatin (SCH) will continue its principal role of providing infirmary care to chronically ill or severely disabled patients who are unlikely to return to independent living. Bradbury Hospice (BBH), on the other hand, will continue its role as an extended care hospital that provides palliative care services for patients with terminal illness.

IMPLEMENTATION ENABLERS

To facilitate the execution of the clinical strategies and delineated roles, a number of key drivers will be necessary as enablers of change, including workforce planning, information technology support, governance structure, business support, and physical design and facilities. For many of the strategies, the changes can and should begin immediately, and would not need to wait for hospital redevelopment to take place. Overall, a cluster-based committee involving the Cluster Chief Executive and senior staff of the Cluster should be set up to oversee the implementation of the CSP, while the HA Annual Planning process will be the mechanism to secure the resources required for implementing the strategies.

CONCLUDING REMARKS

The strategies and recommendations reflect the dedication of the NTEC staff in optimising the provision of clinical services and transforming the way services are organised in the Cluster, so as to create synergy in the delivery of care to better meet the long-term healthcare needs of the district populations. With new perspectives generated through the formulation of the CSP, a momentum for change has been built up among Cluster staff for taking the strategies and clinical service programmes forward and ensuring efficient delivery of services. As planners and custodians of the clinical strategies, their professionalism, commitment and enthusiasm will help turn the strategies into reality.

摘要

概覽

新界東聯網臨床服務計劃闡述聯網的臨床策略和未來服務方針，以配合社區的長遠醫療需要，並為威爾斯親王醫院及聯網內其他醫院的重建項目提供規劃指引。本計劃由來自聯網及香港中文大學醫學院不同層面的持份者一同參與制訂。

新界東聯網將邁向成為醫教研合一的網絡，透過結合不同專業在臨床服務、研究和培訓方面的功能，提升服務質素，改善便捷度、效率和安全性。聯網就服務發展的整體策略有以下的共識：

- (i) 為聯網覆蓋的各區提供優質的地區醫院服務；
- (ii) 服務規劃應以「在可行情況下於本區提供，在需要時集中處理」為原則；
- (iii) 整合不同層面的服務，使其緊密協調；以及
- (iv) 培養探究及創新的文化

本計劃載列的策略和建議，是聯網員工共同努力和集思廣益的成果，旨在優化及轉化聯網的服務模式，既能有效應付與日俱增的需求，亦能在醫療服務及科研兩方面繼續走在國際前端。

背景

新界東聯網是醫院管理局（醫管局）兩個設有教學醫院的聯網之一，所覆蓋的服務區域亦是七個聯網中最大。聯網的醫療設施分布於沙田、大埔和北區，總人口佔香港整體人口約17.5%。

威爾斯親王醫院是聯網的區域急症醫院，亦是香港中文大學醫學院的教學醫院。該院曾進行第一期大型重建工程，新大樓於2010年正式啟用。根據政府2014-15年度的財政預算案，該院將會展開第二期重建計劃。聯網內另外兩間急症醫院，即北區醫院及雅麗氏何妙齡那打素醫院，日後亦將進行擴建。此外，北區亦將設立一間社區健康中心。

因應上述的建設項目，醫管局於2014年5月開始制訂新界東聯網臨床服務計劃，勾劃該聯網的臨床策略和未來服務方針，以配合社區的長遠醫療需要，並為威爾斯親王醫院及聯網內其他醫院的重建項目提供規劃指引。

項目管治及執行方法

本計劃的制訂過程由一個項目委員會負責監督。該委員會由新界東聯網總監及醫管局總辦事處策略發展總監一同擔任主席，成員包括聯網的臨床及資深管理人員、威爾斯親王醫院、雅麗氏何妙齡那打素醫院及北區醫院的管治委員會主席，以及香港中文大學醫學院院長。醫管局的總監會議則提供整體策導，並聽取項目委員會定期匯報進度。

同時，聯網及總辦事處聯合組成一個規劃小組，負責統籌及制訂本計劃，並由一名資深的海外醫療服務策劃專家擔任顧問，協助進行諮詢和提供意見。此外，聯網內的部門主管組成一個工作小組，負責研究及協調本計劃的服務發展建議。我們亦成立了顧問委員會，負責檢視專家顧問提交的諮詢結果及建議，並向項目委員會提供意見。

本計劃的制訂過程嚴謹，由聯網及香港中文大學醫學院內不同持份者和臨床人員廣泛參與。所用方法是先進行專科為本的縱向諮詢，包括問卷調查及與前線醫護人員面談；然後進行跨專科臨床項目的橫向諮詢，即成立15個跨專科/跨醫院的臨床工作小組，研究臨床項目的未來發展。最後，我們舉辦了為期一天的研討會，總結臨床工作小組的建議及這個階段的諮詢結果。

我們在2015年6月11日至7月15日就計劃初稿向約500位持份者蒐集回應和建議。這些持份者包括聯網的臨床及管理人員、聯網醫院的管治委員會成員，以及醫管局總辦事處和香港中文大學醫學院的資深行政人員。項目委員在詳細分析及討論所得的建議後，優化了計劃的內容。

計劃經核定後提交總監會議審視，並由醫療服務發展委員會通過。

主要挑戰

諮詢過程顯示，聯網須應對以下四項主要挑戰：

一、區內人口急劇增長和老化，令醫療服務需求大增，情況在北區尤為嚴峻。因應政府提出的新界東北新發展區項目，預計在2031年，北區的人口將較現時增加逾70%。此外，新界東聯網服務範圍內的老年人口增長率，亦高於全港平均水平。

二、聯網內個別醫院的服務不足以應付區內的醫療需要，例如，雅麗氏何妙齡那打素醫院未有提供緊急外科服務、威爾斯親王醫院的急症精神科服務不足，以及北區缺乏療養及康復設施，導致聯網內經常需運送病人轉院，令病情並不複雜的病人亦未能在居住的地區獲得連貫性的治療。

三、我們觀察到聯網內各醫院在服務方面的模式和組織並不一致，導致服務單位之間的協調及合作未如理想，服務水平亦有差異。

四、聯網內三間急症醫院在不同程度上皆出現病人滯留急症室等候入院的情況。除因病床不足外，亦反映服務系統和流程存在問題，包括有關入院政策及病人診治流程方面的問題、跟進護理支援不足，以及過分依賴住院服務等。

策略性框架

我們在考慮上述的挑戰及聯網本身的優勢及發展潛力後，訂立了一個策略性框架，為制訂臨床策略及服務方針提供指引。策略性框架及相關的主要建議如下：

- (i) **為聯網覆蓋的各區提供優質的地區醫院服務**：確保每區設有第二層醫療服務，以滿足區內的需求，並有助減少聯網醫院之間需互相運送病人。具體措施包括在雅麗氏何妙齡那打素醫院重開緊急外科服務、在北區發展療養及康復服務，以及加強威爾斯親王醫院的精神科急症住院服務等。
- (ii) **服務規劃應以「在可行情況下於本區提供，在需要時集中處理」為原則**：即第二層醫療服務盡量在當區提供，而複雜或需要集合專長診治的病症則集中處理，以確保服務質素。因此，腦外科、心胸外科、產科及重大創傷治理等服務，將繼續集中在威爾斯親王醫院提供。
- (iii) **整合不同層面的服務，使其緊密協調**：發展新的服務模式，尤其是跨專業及日間醫療服務，以便統一服務水準、滿足日增長者病人較複雜的醫療需要，同時確保各層面的診治流程銜接暢順，包括從急症室轉到另一個層面的服務（例如住院服務），以及由住院過渡至社區護理。有關具體措施包括：發展設於醫院內的日間醫療中心，以及在急症室派駐老人科醫生，為長者提供專科評估，從而盡快分流他們到適當的部門繼續接受治療。
- (iv) **培養探究及創新的文化**：藉著與香港中文大學醫學院的協作，並推動聯網內各醫院結合醫療服務、教學和研究職能，將聯網發展為醫教研合一的網絡，務求在醫療服務和科研方面保持國際領先水平。

臨床服務項目

按著上述的策略性框架，15個臨床工作小組制訂了以下的服務模式。有關的簡述根據各臨床工作小組的重點範疇劃分為：(i) 系統及流程，(ii) 臨床項目及 (iii) 教學、培訓和研究。

系統及流程

緊急住院

從「入院－診治－出院」各階段入手，減低入院個案、提高住院服務效率，以及加快出院，全方位改善阻礙病人流程的各項因素，從而縮短病人輪候入院的時間。工作小組建議採納老人專科駐急症室的服務模式，讓長者盡快得到專科醫生的評估及治療，從而減少非必要的入院。例如，合適的病人可以由急症室回家，並直接轉介接受社區護理服務；如果病人已經參與紓緩護理計劃，亦可跳過急症病房，直接轉移到療養病房。小組的其他建議包括：讓合適的病人在急症科病房接受跨專科短暫的診治（24至48小時內）；理順內科急症入院的流程；以及加強出院後的支援，讓病人早日出院。此外，日間醫療中心會為非緊急個案提供診治服務，以減輕對住院服務的依賴。

日間及社區醫療服務

日間醫療服務有助減少病人住院的需要，從而減低病人因住院引致的風險，例如細菌感染等。聯網的日間醫療服務將會是跨專業的一站式服務，期望可於同日提供門診、專職醫療及檢查服務。工作小組建議在醫院內設立日間醫療中心，讓急症室可直接轉介合適的病人到中心診治，藉以減少住院個案。日間醫療中心亦可提供慢性疾病管理服務，為病人提供有系統的健康風險評估；以糖尿病為例，病情較重的病人會由日間醫療中心治理，較輕的則由社區健康中心跟進。這個服務模式的整體目標是協助病人在社區內保持健康。

長者綜合醫護服務

聯網計劃透過加強長者醫護服務、創設友待長者的環境，以及在照顧老年病人方面統一採用最佳的實踐方式，提升老年病人的活動能力和生活質素。相關服務須以人為本、積極主動、適時，並多加協調以確保能提供連貫、綜合的跨專業服務，當中包括加強不同專科的合作性。例如，小組建議加強急症科及老人科的合作，在急症室派駐老人科醫生，以便盡快評估及診治老年病人，讓毋須入院的病人可以及早回家。至於急症住院服務，將預留給社區外展醫療服務無法處理的病人。此外，聯網亦會加強為其他專科病房（尤其是外科及骨科）的老年病人提供老人科諮詢會診服務，加快他們的康復過程。

聯網外科服務

聯網內的外科服務將組成一個由同一管理架構統轄的網絡，並會具備跨專業（如診斷服務等）支援。個別的附屬專科若有相當大的急症病例，亦會以聯網為基礎來提供緊急服務。威爾斯親王醫院將繼續作為主要的創傷治療中心，而雅麗氏何妙齡那打素醫院則會分階段開展緊急外科服務。同時，三間急症醫院將增強日間手術服務，當中以雅麗氏何妙齡那打素醫院的角色尤為重要。

手術及深切治療部服務

手術及深切治療部服務會以聯網為基礎，加強跨專業的合作、統一服務水準和建立其管治架構。

(i) 手術服務

小組建議採用現代化手術服務模式，在同日提供整合的術前評估及病人教育，並確保入院至術後護理的流程銜接順暢。聯網會透過以下措施提升服務質素，並減少運送病人轉院和服務重疊的情況，包括：簡化複雜病症的評估程序；將手術前後的護理計劃和所需設備標準化；及連接聯網內各醫院的資訊系統。小組的建議在不同的外科專科均需實行。

(ii) 深切治療部服務

除了支援個別醫院的發展和服務需求外，各醫院的深切治療部亦會加強合作，統一運作標準，以提升服務效率，並在醫院之間建立完善的病人轉介系統，以確保臨床診治流程清晰及協調。

(iii) 痛症管理

小組建議聯網內所有急症醫院均會提供急性痛症服務，而慢性痛症服務則以聯網為本。跨專業的痛症治療團隊會為病情複雜的患者度身制定診治方案，並提供介入性以及認知治療。慢性痛症治療服務將主要由雅麗氏何妙齡那打素醫院的日間醫療中心提供，而其餘兩間急症醫院則提供輔助服務。

臨床服務項目

肌肉骨骼服務

小組建議為患有肌肉骨骼系統疾病的病人提供綜合、跨專業及以病人為中心的服務，強調急症康復治療及綜合日間醫療模式為服務重點。跨專業團隊會及早就病情評估、診治流程及出院計劃主動提供意見。團隊中包括骨科及老人科專科醫生，亦包括醫務社工在內的專職醫療人員。骨科急症將由聯網內三間急症醫院分區處理，而康復服務則主要集中於大埔醫院以聯網為本的形式提供。

癌症服務

癌症服務主要會以日間醫療方式提供。工作小組建議採用跨專業及共同護理的概念，處理常見的癌症，為病人提供綜合、全人及切合個人需要的治療。同時，聯網會就常見的癌症制定治療指引和程序，確保聯網內各醫院的治療質素；亦會有癌症個案經理負責協調病人的跨專科治療，並確保不同治療階段銜接暢順。此外，鑑於服務需求日益增加，小組建議威爾斯親王醫院及北區醫院提供跨專業的門診及化療服務。

腎病服務

為滿足不同程度慢性腎病患者的醫療需要，醫院及社區內醫護專業人員的互相配合至為重要。此外，為鼓勵跨專科的協作和跨專業醫護模式，工作小組建議腎科和泌尿科可共用相關設施為病人服務，其中包括門診、病房、教學及研究設施等等。小組亦建議在雅麗氏何妙齡那打素醫院成立聯網的日間泌尿科中心，並於短期至中期提供短暫住院服務，長遠希望泌尿科病房可提供24小時緊急服務。

腸胃及肝膽外科服務

腸胃科、放射科及外科醫生將合作為腸胃及肝膽病患者提供相關的診斷及治療，如內窺鏡檢查服務等。工作小組建議不同的專科應共用設施，在斷症及經驗分享方面加強協作，為病人提供一站式服務。

心臟及肺病服務

小組建議以聯網為基礎，成立一個由心臟科、心胸外科及麻醉科醫生組成的醫療團隊，為病人提供評估及制訂療程。心胸外科手術將集中由威爾斯親王醫院提供；該院亦會為急性心肌梗塞的病人提供緊急冠狀動脈介入治療，長遠目標為24小時服務。至於需求較大的慢性呼吸系統疾病治療及肺病康復服務，則會由聯網各醫院分區處理。

神經科學服務

小組建議在威爾斯親王醫院開設臨床神經科學服務，為聯網內的病人提供綜合治療，並繼續提供神經外科手術。此外，聯網亦計劃將急性中風溶栓治療分段擴展至雅麗氏何妙齡那打素醫院及北區醫院。

精神健康服務

聯網將以跨專業協作及社區為本的模式，提供個人化的精神健康服務。若病人需要住院照顧，跨專業團隊會為病人在寧靜的醫院環境提供限時治療。聯網亦會與社區夥伴合作，加強社區對精神病患者（特別是一般精神病患者）的支援。此外，威爾斯親王醫院亦急需增加精神科急症住院評估服務。

產科及初生嬰兒科服務

小組建議產科及初生嬰兒科服務應以聯網為本。設於威爾斯親王醫院的大型產科及初生嬰兒科部門將提供住院服務，而門診及日間醫療中心則會提供分娩前後的醫護服務。雅麗氏何妙齡那打素醫院將繼續設有初生嬰兒科服務，協助處理輕微的初生嬰兒病症。

病理學及放射服務

病理學及放射科為聯網眾多臨床服務提供重要支援。在病理學方面，工作小組建議威爾斯親王醫院應負責大部分病理學服務及24小時專科支援；而另外兩間地區全科醫院則設自動化微生物實驗室。小組亦建議提升雅麗氏何妙齡那打素醫院的血庫及快速測試實驗室的服務，以支援醫院逐步重開的緊急外科服務。放射科方面，將設立一個聯網服務總監，負責協調威爾斯親王醫院、雅麗氏何妙齡那打素醫院及北區醫院的放射科部門，為各區提供優質服務；此外聯網亦會提供一站式放射服務，支援各個臨床團隊發展日間醫療服務。

教學、培訓和研究

教學、培訓和研究

工作小組鼓勵聯網各醫院培養探究、教學及創新文化，追求卓越表現，推動聯網邁向成為醫教研合一的網絡。作為這個網絡的核心基地，相關設施和活動將主要設於威爾斯親王醫院；而聯網內其他醫院則根據其臨床服務模式及專長，建立輔助設施。設施的設計應能鼓勵使用者互動及協作，將教學、培訓和研究結合到臨床服務上。

醫院的角色定位

各醫院有清晰的角色和定位，將有助新界東聯網發展成為醫教研合一的網絡。各醫院作為聯網的一份子，將投入及加強各自在教學和研究方面的角色。

威爾斯親王醫院將繼續作為聯網的區域急症醫院及第三層醫療轉介中心，並集中處理以聯網為本的服務，包括腦外科、心胸外科及重大創傷治理。該院並作為聯網的醫教研網絡的發展中心，支援聯網內其他醫院的服務發展，同時帶領提升醫療服務水準和質素。

沙田醫院將繼續提供療養、康復和精神科住院服務，以及老人專科和舒緩治療服務。

雅麗氏何妙齡那打素醫院和北區醫院將加強成為當區的急症全科醫院，分別為大埔及北區提供一般專科的緊急及非緊急醫療服務。同時，雅麗氏何妙齡那打素醫院將發展成聯網的日間醫療及短暫住院中心，並重開緊急外科服務。

大埔醫院將繼續擔當延續護理醫院的角色，並主力為整個聯網提供精神科刊憲病房的服務，以及專門的骨科康復服務。我們亦建議在臨床及管理上將該院與雅麗氏何妙齡那打素醫院整合，以改善這兩間毗鄰醫院之間的服務連貫性及病人流程。

沙田慈氏護養院將主要為缺乏自理能力的慢性病患者及嚴重殘疾人士提供護養服務。白普理寧養中心將繼續為末期病患者提供舒緩治療服務。

落實推行

為實施各項臨床策略及履行各醫院的角色定位，需要多方面的配合，包括人力規劃、資訊科技支援、管治架構、業務支援，以及實體設計和設施。本計劃載列的大部分策略，相關工作可即時展開，毋須等待醫院重建後才實行。整體來說，應成立一個聯網委員會，成員包括聯網總監及資深人員，以監察計劃的落實進度，並透過醫管局周年工作計劃的機制，申撥所需資源實施各項策略。

總結

新界東聯網臨床服務計劃所提出的策略及建議，反映了聯網人員的睿見和努力，積極優化臨床服務及轉化服務模式，以達至協同效應，滿足區內居民對醫療服務的長遠需求。在制訂計劃的過程中所衍生的新觀點，為聯網人員注入求變的動力，有助推動各項的臨床策略，並提升服務效能。作為籌劃及推展臨床策略的一份子，聯網人員憑其專業精神、決心和熱誠，定能成功落實本計劃。



Introduction

BACKGROUND AND PURPOSE OF PLAN

There are three acute hospitals in the New Territories East Cluster (NTEC), namely Prince of Wales Hospital (PWH), Alice Ho Miu Ling Nethersole Hospital (AHNH) and North District Hospital (NDH). They are supported by four extended care hospitals which are Shatin Hospital (SH), Cheshire Home, Shatin (SCH), Bradbury Hospice (BBH) and Tai Po Hospital (TPH). The Cluster also manages 10 general out-patient clinics (GOPCs).

PWH is the Cluster's acute regional hospital as well as a teaching hospital of the Faculty of Medicine of the Chinese University of Hong Kong (CUHK). It has undergone a major redevelopment project (Phase 1) with the construction of a new building, which was completed in 2010. In the 2014-15 Budget Speech, the Government indicated that planning for the Phase 2 redevelopment of PWH would commence so as to address the community's long-term demand for healthcare services. Meanwhile, future expansion of NDH and AHNH, amongst others, has also been catered for by reserving the residual development potential of the hospital sites. In addition, a Community Health Centre (CHC) is also being planned for North District.

In this connection, the Hospital Authority (HA) commenced in May 2014 to develop a Clinical Services Plan (CSP) for the NTEC. The objective is to map out the Cluster's clinical strategies and future service directions for meeting the long-term healthcare needs of the community.

By delineating the roles of NTEC hospitals, updating their service profiles and describing the implementation enablers of the clinical strategies, in particular the physical facilities and their design implications, the CSP also serves to facilitate and guide the redevelopment of PWH and other Cluster hospitals in the years to come.

ABOUT THE NEW TERRITORIES EAST CLUSTER

Established in 2001, NTEC is one of the only two Clusters in HA that manage a teaching hospital. It is also the largest Cluster in HA in terms of the geographical coverage of its catchment districts. Its healthcare facilities are located in the Sha Tin, Tai Po and North districts, which have a combined population of around 1.26 million, accounting for 17.5% of the overall Hong Kong population.¹ Each district is served by one of the three acute hospitals in the Cluster which each operates a 24-hour Accident and Emergency (A&E) department. Specifically PWH is located in Sha Tin, AHNH in Tai Po, and NDH in the North District. SH, BBH and SCH situated in the Sha Tin District provide extended care services mostly for patients from PWH, while TPH located in the Tai Po District provides those mainly for patients from AHNH and NDH. There are no extended care facilities in the North District.

The hospitals in NTEC together provide a wide range of acute, convalescent, rehabilitation, infirmary and ambulatory care services to the districts' populations, as well as tertiary and quaternary services to the territory-wide population. In addition, NTEC is serving cross-border patients who are mostly Hong Kong citizens residing in Mainland China, in view of the proximity of some of its facilities to the border. An inter-departmental study is currently undertaken by the Census and Statistics Department, Immigration Department and HA on cross-border population, which will shed light on the number of cross-border patients served by the Cluster. Being close to the border also means that NTEC facilities are likely to be in the frontline when dealing with port health issues, such as in managing infectious disease cases from across the border.

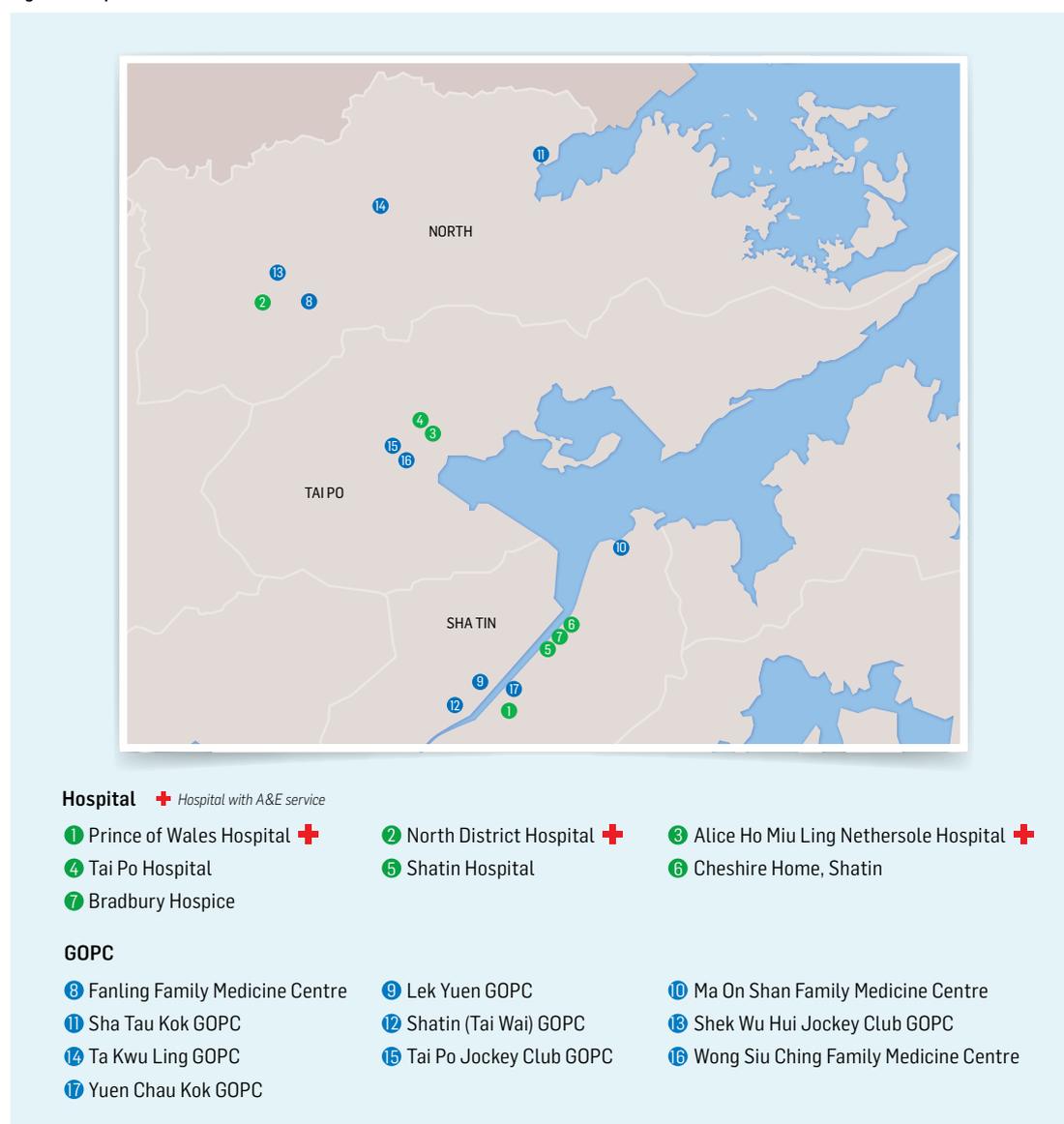
Due to historical development, the Cluster has a unique clinical service configuration arising from a series of fateful events that unfolded in 2003, two years after the establishment of NTEC. The major occurrence was the outbreak of Severe Acute Respiratory Syndrome (SARS) in Hong Kong, which first came to light at PWH when there was no knowledge of the emerging infectious disease. It led to a significant realignment of clinical services in the Cluster in anticipation of a continued spread of the disease. In particular, AHNH was geared up to focus on managing infectious disease cases, with a cessation of its obstetric services and translocation of its surgical teams to NDH together with other related clinical support services and teams. The service configuration remained after the epidemic was over, mainly due to rationalisation measures in the aftermath of the Asia financial crisis in the early 2000s. The ensuing service development in NTEC was based on this structure.

¹ Mid-2013 estimates. Projections of Population Distribution 2014-2023, Planning Department, HKSAR Government.

Overall, NTEC provided a total of 4,518 beds as at March 2014 (including 2,623 for acute general, 854 for convalescent and rehabilitation care, 517 for infirmary care, and 524 for psychiatric care)² through a workforce of around 10,560 staff.³ In terms of service volume, in 2013-14 the Cluster managed approximately 393,040 A&E first attendances; 166,050 in-patient and 96,400 day patient discharge episodes; 1,099,140 specialist out-patient clinic (SOPC) attendances;⁴ and 1,001,370 GOPC and Family Medicine specialist clinic attendances.⁵

The organisation structure of NTEC is presented in *Appendix 1*, while the locations of the Cluster's healthcare facilities are indicated in Figure 1.

Figure 1. Map of healthcare facilities of the New Territories East Cluster



2 HA Report on Annual Survey on Hospital Beds in Public Hospitals 2013/14. This reference applies to all bed figures in this chapter.

3 Number of full-time equivalent staff (as at 31 March 2014), HA Annual Report 2013-2014. This applies to all workforce figures in this chapter.

4 SOPC attendances include attendances from nurse clinics in SOP setting.

5 GOPC attendances include attendances for doctor consultations, attendances from nurse clinics in GOP setting and attendances in related healthcare reform initiative programmes in primary care.

HOSPITALS OF THE CLUSTER

Prince of Wales Hospital

Apart from being an acute regional hospital and a teaching hospital, PWH is also a designated trauma centre. Besides secondary care services for Sha Tin residents, it provides tertiary and quaternary range of services such as kidney transplant and cardiothoracic surgery to patients from within and outside NTEC. As at 31 March 2014, PWH managed 1,518 beds through a workforce of around 4,980 staff.

Specifically, PWH delivers an extensive range of services with 17 clinical departments, as well as specialised service centres offering support in oncology, burns, cardiothoracic surgery, paediatric surgery, neurosurgery, robotic surgery, assisted reproductive technology, renal dialysis, toxicology, scoliosis and organ transplant, and accepts referrals for many of the specialised services from hospitals outside NTEC. Among these, the Lady Pao Children's Cancer Centre at PWH treats about 40% of the children's cancer cases in Hong Kong, with around 100 new patients managed in the centre each year. PWH also operates the only obstetric unit in the Cluster.



PWH commenced operation in 1984 and over the years has been working in close collaboration with the CUHK Faculty of Medicine in all clinical areas to provide patients with comprehensive services. Following the establishment of the Phase 1 Clinical Trial Centre at PWH, the capacity of clinical research is further expanded, which enhances the quality of healthcare services for the hospital to better serve the local community and the region.

Nevertheless, as PWH was built in the 1970s, outdated design and facilities have become a limiting factor in meeting the demand of a modern hospital despite the dedication of its staff to provide quality services. For example, there is a lack of sufficient headroom for installation of information technology (IT) and communications infrastructure for modern medical technology and mode of service delivery. Notwithstanding the completion of Main Clinical Block and Trauma Centre in its redevelopment in 2010, many of its clinical services remain scattered

and operational in the old buildings under suboptimal conditions. Incremental growth and piecemeal developments over the years have resulted in a lack of proper services zoning for easy co-location and patient-centred orientation. Related or even the same services are scattered over different locations, leading to poorly aligned functional relationship amongst departments and lengthening travelling time for both staff and patients. Hence, there is an imminent need for its Phase 2 redevelopment to proceed.

Shatin Hospital

Formerly known as the Shatin Infirmery and Convalescent Hospital, Shatin Hospital (SH) commenced operation in 1991 and was fully operational in 1994. As at 31 March 2014, it managed 553 in-patient beds through a workforce of around 836 staff.

As an extended care hospital, SH has a particular focus on rehabilitation and delivers a range of services with emphasis on medicine and geriatrics, surgery, psychogeriatrics, adult psychiatry, hospice and palliative care. It also provides extensive post-discharge care for patients through its four types of day hospital services, i.e., geriatric day hospital service, adult psychiatric day hospital service, psychogeriatric day hospital service, as well as hospice and palliative care day hospital service.

In addition, community psychiatric service for Sha Tin District is based at SH and provides community-based mental health and rehabilitation programme, which includes medical consultation, personalised care and crisis intervention for patients. SH has established collaborations with non-governmental organisations (NGOs) and various volunteer groups in strengthening its community partnership. The hospital also provides teaching to medical, nursing and allied health students.



Cheshire Home, Shatin

SCH is an extended care facility providing infirmary care for patients from the central infirmary waiting list as well as those with severe disabilities. It is the second home built by Hong Kong Cheshire Home Foundation. SCH started operation in March 1991, with HA assuming management responsibility in December 1991. Built to provide extended care and rehabilitation services to people with temporary or permanent physical disabilities, SCH provides a unique facility by combining a hospital block on the lower level and a chalet home area on the upper level.



SCH provides health maintenance and other rehabilitation programmes, including medical and nursing care, physiotherapy, occupational therapy, speech therapy and dietetic services, to patients in a homely environment, with dedicated team of staff and purpose-built facilities such as wheelchair training track and daily living room.

SCH is run by a team of 233 staff, and there are also support from Cluster teams on X-ray, speech therapy and dietetic services. It has two units, i.e., the disabled unit and the infirmary unit, making up a total of 304 beds.

Bradbury Hospice

Established by the Society for the Promotion of Hospice in 1992, BBH specialises in hospice and palliative care, and is the first institution in Hong Kong to provide specialist hospice care for terminally-ill cancer patients referred by their doctors.



Services at BBH include in-patient care, home care, hospital consultation liaison service and day care. Besides medical and nursing care to relieve patients' pain and for symptom control, the hospice also looks after the emotional and spiritual needs of patients and relatives in wards or at homes. It coordinates with hospitals or care homes to ensure that patients receive a continuum of care, while also providing a comprehensive bereavement support to relatives after the patients have passed away. There are extensive outreach services and a network of community care services.

Furthermore, BBH provides training opportunities for undergraduate medical students, doctors, nurses and other healthcare professionals. As at 31 March 2014, BBH operated 26 beds and had a workforce of around 60 staff. It also has a pool of over 300 volunteers contributing to the overall services provided by the hospice.

Alice Ho Miu Ling Nethersole Hospital

Founded by the former London Missionary Society in 1887, AHNH was the first hospital in Hong Kong to offer services based on Western medical principles to the local Chinese community. The hospital relocated to Tai Po District in 1997 and, as the district's acute hospital, provides a wide range of secondary care services including in-patient, ambulatory care, day surgery, out-patient and outreach services to the local residents.

AHNH also provides paediatric services to the population of both the Tai Po and North districts. In addition, it delivers cluster-based child and adolescent psychiatric services, such as "Serene Teen" – a Holistic Child and Youth Wellness Centre cum Training Centre – as well as day surgical services to cluster-wide patients via the CUHK-affiliated academic unit of ear, nose and throat (ENT) surgery at AHNH. Moreover, the NTEC Pain Management Centre at AHNH provides treatment supported by a multi-disciplinary team. Its Nocturnal Home Haemodialysis Training Centre is the third centre in Hong Kong providing home haemodialysis training and service to patients. However, despite operating an A&E department, AHNH has not provided emergency surgical services since 2003 as a result of service reorganisation in the Cluster.



With the support of Alice Ho Miu Ling Nethersole Charity Foundation, AHNH delivers holistic care by teams of professionals from Chaplaincy, Chinese Medicine, Nethersole Outreaching Rehabilitation Mission Team and Nethersole Institute of Continuing Holistic Health Education. In addition, AHNH plays a role in professional training, such as on hazmat incident management, inter-hospital patient transport services and clinical pastoral education.

As at 31 March 2014, AHNH operated 536 beds, with a workforce of 1,756.

Tai Po Hospital

TPH commenced operation in January 1998. The hospital was purpose-built to provide extended care and integrated rehabilitation services for the elderly, the chronically ill, and patients who need infirmary care referred from other hospitals in the Cluster or the central infirmary waiting list, as well as patients requiring psychiatric services in NTEC.



In particular, TPH provides orthopaedic rehabilitation service for the whole Cluster and is also one of the three designated spinal cord injury rehabilitation centres in Hong Kong. Besides offering acute adult and geriatric psychiatric services, including in-patient, day patient and community care, the hospital also operates gazette psychiatric wards to cater for patients with severe psychiatric conditions requiring involuntary admissions in the Cluster.

As at 31 March 2014, TPH operated 992 beds through a workforce of 933.

North District Hospital

NDH commenced service in 1998 as an acute hospital in the North District. It provides a wide range of secondary care services covering in-patient and out-patient services with a focus on ambulatory care, as well as community outreach services. As at 31 March 2014, NDH had around 1,760 staff and 589 beds.



Other than serving North District, clinical staff members from NDH also provide acute surgical services as well as radiology and pathology support at AHNH for Tai Po residents. NDH also provides breast surgical service for the whole Cluster. In addition, it was noted that 16% of the A&E first attendances at NDH in 2013 were provided to patients not residing in the catchment districts, which was significantly higher than the 10% registered at PWH and the 7% at AHNH. A major contributing factor is cross-border patients that NDH attends to, mainly due to its proximity to Hong Kong's border with the Mainland. On the other hand, in-patient paediatric services are not available at NDH, which are mainly supported by AHNH in this respect.

NDH is recognised for its Foot and Ankle Service, with various minimally invasive surgical techniques in this field having been pioneered at the hospital. Many young doctors with interest in foot and ankle surgeries have undergone attachment at the hospital for training.

Furthermore, NDH emphasises partnership with the community and has implemented a series of programmes on health education in collaboration with various organisations.

Appendix 2 contains a summary list of services offered by the NTEC hospitals.

Planning Process



GOVERNANCE

The development of the NTEC CSP was overseen by a Project Committee jointly chaired by the Cluster Chief Executive of NTEC and the Director of Strategy and Planning from the Head Office (HAHO), with members including NTEC clinicians and senior management, chairpersons of the PWH, AHNH and NDH Hospital Governing Committees, as well as the Dean of the CUHK Faculty of Medicine. The Project Committee regularly reported to the Directors' Meeting which provided the overall steer for the project.

To carry out and coordinate the project, a Planning Team was formed with members from both NTEC and HAHO. The Planning Team was supported by an experienced overseas healthcare service planner engaged as an external consultant to carry out the consultation process and provide input to the project. Meanwhile, a work group comprising the Chiefs of Service (COS) in NTEC was also established to deliberate and align service proposals in support of the development of the CSP. In addition, an Advisory Panel was formed to review and comment on the observations and recommendations made by the external consultant and to provide advice to the Project Committee.

The membership and terms of reference of the Project Committee, Advisory Panel, Planning Team, and COS Workgroup are set out in *Appendix 3*.

Following formulation, the draft NTEC CSP was deliberated and submitted to the Directors' Meeting for endorsement and the Medical Services Development Committee (MSDC) for approval. The overall governance structure of the project is illustrated in Figure 2.

Figure 2. Project governance structure



METHODOLOGY

The NTEC CSP was developed through a highly interactive and broad engagement approach with the involvement of a wide range of stakeholders from the Cluster and the CUHK Faculty of Medicine. They included clinical staff such as doctors, nurses, pharmacists and allied health professionals, as well as senior management and the Hospital Governing Committees of all the Cluster hospitals, and also the Deanery of the CUHK Faculty of Medicine. The process is outlined in the following sections.

Staff Briefing

In July 2014, a cluster briefing forum was conducted to introduce the development of the CSP to the Cluster staff. Around 300 clinical service heads, senior clinical staff and executives from across NTEC, as well as the Dean of the CUHK Faculty of Medicine participated in the forum. They were briefed about the project and were invited to participate in the planning process.



After the briefing forum, a two-phase consultation process was carried out in the subsequent months, which covered “vertical specialty-based” and “horizontal programme-based” consultations. These are described in the ensuing paragraphs.

Vertical Specialty-based Consultation

This phase of specialty-based consultation involved a questionnaire survey and face-to-face interviews. The aim was to consolidate views from key stakeholders on the current service profiles, perceived key service gaps and future developments at the hospital and cluster levels. Participants also provided input on their current contributions to education, training and research, and their anticipated future development in these areas. Key challenges of the services are also identified in the process.

Survey

In August 2014, a questionnaire survey was distributed to each clinical unit, department and institution in NTEC, as well as to the Deanery of the CUHK Faculty of Medicine. The overall response rate for the survey was 94% (out of a total of 362 recipients). The completed surveys formed the basis of discussions for the subsequent face-to-face interviews.

Face-to-face Interviews

Two rounds of face-to-face interviews were conducted between August and October 2014. A total of 168 sessions were conducted with 341 participants interviewed, involving service heads, frontline medical, nursing, allied health and pharmacy staff, hospital management (including the chairman of the Hospital Governing Committee of each hospital) and the Deanery of the CUHK Faculty of Medicine.

The first round of interviews involved the COS of hospital departments, chairmen of the clinical specialties at CUHK, the specialty team heads, and the department managers. In the second round of interviews, the specialty / sub-specialty team heads and their team members were interviewed. In addition, views were sought from the chairmen of the Hospital Governing Committees and also the Hospital Chief Executives on the future service developments of the NTEC hospitals.

Horizontal Programme-based Consultation

The second phase of the consultation was conducted between November and December 2014 and involved the formation of 15 programme-based Clinical Work Groups (CWGs). The purpose of the CWGs was to provide a platform for stakeholders from different disciplines, specialties and hospitals in NTEC to formulate cluster-based proposals together on the future development of specific clinical programmes, taking into consideration the key challenges of the services that need to be addressed.

The chairmanship of the CWGs were recommended by the Planning Team during the course of the face-to-face interviews, with inputs from the external consultant and the COS Workgroup, and agreed by the Project Committee. Altogether, around 300 frontline colleagues were engaged in this phase of the consultation process.



A One-day Seminar was held on 16 January 2015, where the CWGs presented their proposals for deliberations, marking the conclusion of this consultation phase. The seminar was facilitated by the HAHO Director of Strategy and Planning and attended by around 510 participants, including the Chief Executive of HA, the Cluster Chief Executive of NTEC, clinicians, nurses, pharmacists, allied health professionals and other HA executives, the Hospital Governing Committees in NTEC, as well as the Dean of the CUHK Faculty of Medicine. The CWGs' proposals are summarised in the chapter on [Clinical Service Programmes](#).

Role Delineation

Based on the information and deliberations from the two phases of consultation, the future roles of the hospitals in NTEC were delineated.

Demand Projection

Projections on the service demand and bed requirements for NTEC were estimated up to the year 2031. The projections took into account the demographic and population changes, past trends of HA-average age-gender-specialty-specific service utilisation, as well as the hospital patronage pattern across districts.

Policy Overlay

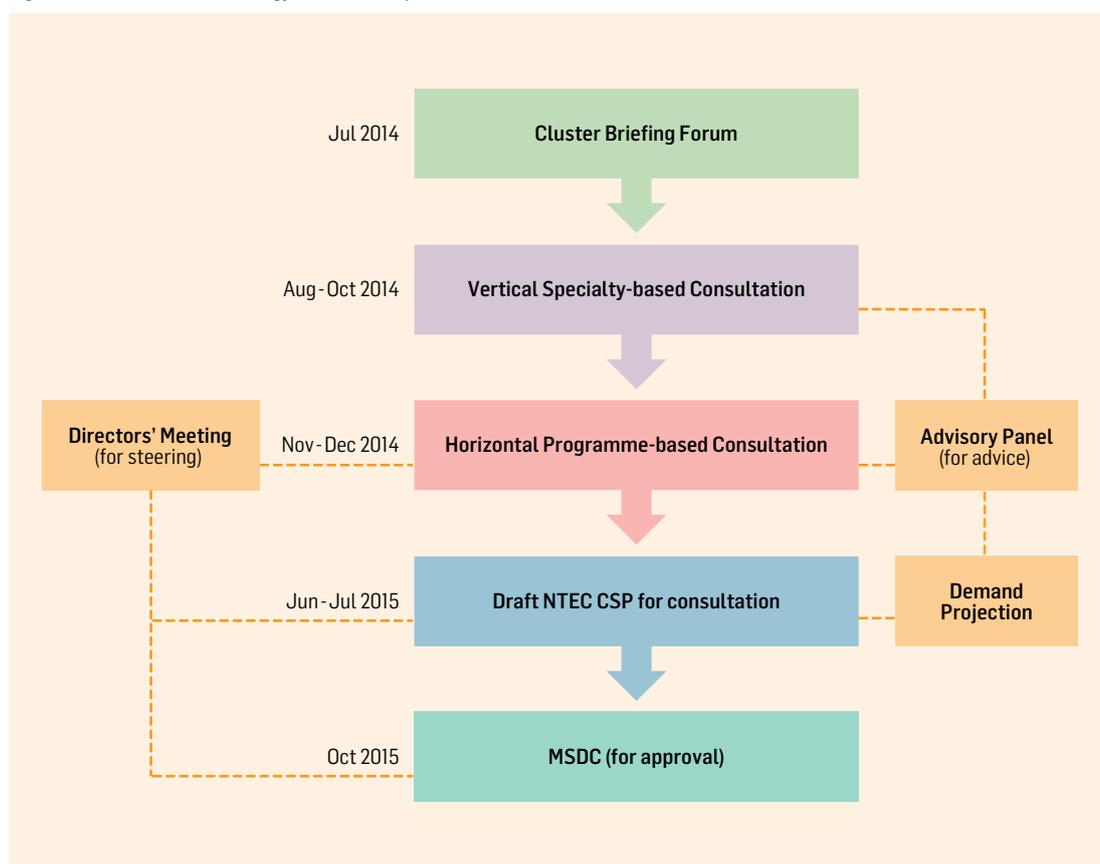
Members of the Directors' Meeting provided policy overlay for the development of the NTEC CSP. This involved decisions at high level, incorporating broad considerations of the views of various stakeholders, including relevant government bureaux and the HA Board.

Consultation of the Draft CSP

The draft NTEC CSP was made available to 500 key stakeholders between 11 June and 15 July 2015 to solicit feedback and suggestions. The stakeholders included clinical and management staff from the Cluster, the Hospital Governing Committees of the NTEC hospitals, as well as senior executives from HAHO and the CUHK Faculty of Medicine. Responses received were carefully reviewed and deliberated by the Project Committee, and were used as a basis to refine the CSP.

An overview of the process and methodology for the development of the NTEC CSP is illustrated in Figure 3.

Figure 3. Process and methodology for the development of NTEC CSP



Key Challenges



KEY CHALLENGES

During the consultation process in developing this CSP, several key challenges facing NTEC were identified and taken into consideration when mapping out the clinical strategies and service directions of the Cluster. The overarching key challenges are set out below.

Population Growth and Ageing across the Catchment Districts

According to the Government's population projection⁶, by 2023 the combined population in the three districts of Sha Tin, Tai Po and North will increase by around 15%, from the current 1.26 million to 1.45 million. The growth is particularly steep in Tai Po and North districts, at 26% and 16% respectively. The population in Sha Tin, on the other hand, will grow by 10%, but enough for Sha Tin to remain as the most populous district in Hong Kong going into 2023, with its population reaching 714,000 from the current 647,300. The growth rate in all the three districts is much higher than the projected increase of 8% for the whole of Hong Kong.

The projected populations are 382,300 and 355,900 for Tai Po and North districts respectively. However, the North East New Territories New Development Areas proposed by the Government would bring in an additional population of about 175,000 to North District by 2031, after the first population intake in 2023.⁷ This means the population in North District could reach 530,000 by 2031, which would represent an immense growth of over 70% compared to its current population size of 307,800.

⁶ Mid-2013 estimates. Projections of Population Distribution 2014-2023, Planning Department, HKSAR Government.

⁷ North East New Territories New Development Areas Planning and Engineering Study, Information Digest (July 2013), Planning Department and Civil Engineering and Development Department, HKSAR Government.

In addition, by 2023 the proportion of elderly people in the three districts will reach 20% for Sha Tin, and 18% for both Tai Po and North districts. While they are relatively lower than the 21% elderly proportion projected for Hong Kong overall, the magnitude of the increase is quite significant for the three districts. The elderly populations are projected to increase by 99% for Tai Po, 83% for North, and 77% for Sha Tin, which are significantly higher than the 56% increase for the whole of Hong Kong.

Given the huge population growth in the three districts, particularly the disproportionate increase in their elderly population, the demand for NTEC services is expected to increase significantly, especially in North District. Hence, there is a need to plan ahead the service capacity of the Cluster and review its service models to better manage the rising demand of elderly patients. In particular, a [CWG on Integrated Elderly Care Services](#) and a [CWG on Musculoskeletal Services](#) were set up in the consultation process of the CSP to formulate strategies for addressing the complexity of illness of elderly patients and improving their accessibility to services across the continuum of care.

Service Gaps in Meeting the Healthcare Needs of District Populations

There exist various service gaps in meeting the healthcare needs of local residents in Tai Po, Sha Tin and North districts, which often lead to frequent transfer of patients between hospitals in the Cluster. In particular, there is an absence of emergency surgical service at AHNH despite it being an acute hospital providing 24-hour A&E service and managing a high volume of A&E attendances in Tai Po. All the emergency surgical cases presenting to AHNH have to be diverted to PWH or NDH, resulting in a high volume of emergency patient transfers. For example, in 2013 around 3,400 emergency cases from the A&E department of AHNH were transferred to NDH for emergency admissions, while another 900 were transferred to PWH.

At the same time, acute psychiatric service is inadequate at PWH, so acutely disturbed patients such as those with delirium or mental health patients with other co-morbidities are either admitted to SH or to general medical wards at PWH. Those who are transferred to SH may need to be transferred back to PWH should their other medical conditions require specialist care. For example in 2014, 190 patients from the medical wards of PWH were transferred to SH's psychiatric unit, and 66 patients were transferred from the psychiatric unit of SH to the medical wards at PWH. As for those admitted to the general wards, the environment may not be appropriate for their care, which may give rise to further behavioural disturbance and causing distress not only to these patients but also to the staff and other patients in the wards.

Meanwhile, there are no extended care facilities in North District. It is noted that 35% of the convalescent and rehabilitation patients discharged from TPH in 2014 resided in North District. It will be more convenient to the patients if convalescent and rehabilitation services could be provided in North District, which will also facilitate continuity of care.

In general, given the wide geographical span of the catchment districts of NTEC and high patient loads of its acute hospitals, it is important for them to be self-sufficient in terms of basic secondary care services to meet the healthcare needs of the district populations and minimise avoidable patient transfers. In particular, it is imperative for AHNH offering 24-hour A&E service to be equipped with on-site emergency surgical support. Hence, a [CWG on Cluster Surgical Services](#) was formed to review the surgical service models of NTEC and make recommendations. There was also a [CWG on Mental Health Services](#) to deliberate on future service directions, including addressing the psychiatric service gap at PWH.

Suboptimal Service Coordination and Collaboration among Hospitals in the Cluster

While it is important to provide localised services to meet the healthcare needs of the district populations, variations in service model and organisation of the same services were observed among the hospitals in NTEC. The variations are often accompanied by suboptimal coordination and collaboration among the service units, and differences in standards of care.

For instance, there are three different ICU models among the three acute hospitals. The ICU at PWH is an integral part of the department of anaesthesiology and intensive care, but at AHNH, the service is managed by the department of medicine, while the ICU at NDH is an independent department. Incidentally, there are also differences in the structure and process of anaesthetic services at the three acute hospitals, and they adopt slightly different peri-operative procedures.

There is a need to align the services in order to enhance collaboration and the standards of care through benchmarking and peer review. Alignment of clinical pathways will also help to streamline patient management and facilitate smoother patient flow between hospitals in the Cluster.

At the same time, it is also important to centralise some of the specialised services that require concentration of clinical expertise and caseload, so as to ensure the quality and standard of service for a critical mass of cases. Examples include obstetric services, paediatric intensive care, neurosurgery and cardiothoracic surgery, all of which are already centralised at PWH in the Cluster. However, it was noted during the consultation process that neurosurgery and thoracic surgery were also being developed at NDH, which posed an issue in ensuring adequate expertise in managing the patients as well as maintaining the standard of care.

A key strategy on enhancing service coordination and collaboration is the development of cluster-based services. In this connection, various CWGs were set up to review the respective service models and deliberate on cluster-based service development, including [CWGs on Peri-operative and ICU Services](#); [Obstetrics and Neonatal Services](#); [Neuroscience Services](#); and [Heart and Lung Services](#).



Access Block at Acute Hospitals in the Cluster

All three acute hospitals in NTEC have access block issues, although to a much lesser extent at NDH compared to the situation at PWH and AHNH where around 13% and 4% of the admitted emergency patients in 2013-14 respectively had to wait for more than eight hours at the A&E departments before a bed was allocated to them in the in-patient ward, with the situation more pronounced for those requiring admission to a medical ward.

Access block contributes to overcrowding at the A&E departments, and the issue is far more complex than a shortage of acute beds. The phenomenon is multi-factorial, often resulting from system and clinical flow issues that exist beyond the A&E departments. These include factors relating to the admission policy of the acute ward, discharge and patient flow arrangement, bed coordination and management, support from step-down facilities including convalescent and rehabilitation services as well as community care services for relieving the pressure of acute beds, service model issue such as over-reliance on in-patient care particularly for elective cases, etc.

The rapid rate of population growth and ageing in the Cluster's catchment districts will further aggravate the access block of its acute hospitals if the underlying causes are not addressed. Besides the need for capacity increase, it is also essential to review the service configuration and delivery model in order to better address the issues. This includes strategies that help reduce avoidable admissions and facilitate the integration of services across the continuum of care to smooth patient flow and discharge. In relation, CWGs to discuss systems and processes were established, namely, the [CWG on Emergency Admissions](#) to specifically address the access block issues and the [CWG on Ambulatory and Community Care Services](#) to develop service models for reducing the reliance on in-patient services.

Summary

The existing service configuration in NTEC poses a great challenge in meeting the healthcare needs of the local community, particularly in the face of rapid growth and ageing of the district populations. There is a need to review the models of care and service organisation in order to meet the changing and growing demand, fill the gaps, improve service accessibility, and enhance service coordination and collaboration among its hospitals. The clinical strategies formulated by NTEC, especially those proposed by the CWGs to address the highlighted issues, are set out in the ensuing chapters.

Strategic Framework



In consideration of the key challenges faced by NTEC as well as reflecting on the strengths and potentials of the Cluster, an overall framework was drawn up to guide the development of clinical services in NTEC and incorporated into the deliberations of the CWGs.

The underlying principles of the framework and the strategies that resulted embrace a cluster-wide perspective and are complementary to each other in addressing the key challenges of the Cluster. The strategies also give full play to the commitment of NTEC staff in providing high quality patient care and meeting the long-term healthcare needs of the local community.

The framework comprises the following four overarching strategies:

- 1 *Provision of quality district hospital services to each district covered by NTEC*, with a view to ensuring that basic secondary care services like those in the general specialties of medicine, surgery, and orthopaedics and traumatology are available in each of the catchment districts to meet the healthcare needs of the local community, while at the same time helping to reduce avoidable patient transfers among hospitals in the Cluster. Hence besides emergency care, AHNH and NDH will need to provide a range of basic secondary care services serving as a district hospital for their respective catchment districts. On the other hand, it is necessary for PWH as the regional hospital to offer tertiary and specialised services for the whole Cluster in addition to secondary care services targeted at its own catchment district.
- 2 *Adherence to the “localise where possible and centralise where necessary” principle in service provision*, so that while most secondary care services are provided through localised care, specialised services that require concentration of expertise to ensure the quality of service for a critical mass of cases will be centralised. Cluster-based service development is also encouraged for improving service coordination and collaboration, although the acute hospitals are allowed to develop flagship services building on their existing strengths or reflecting the needs of their communities, while maintaining PWH as a tertiary referral centre.
- 3 *Integration of services across the continuum of care* through the development of new service models with an emphasis on multi-disciplinary care and ambulatory care, so as to align service standard, better meet the complex healthcare needs of the growing number of elderly patients and facilitate a smooth transition among different levels of care, thereby helping to reduce access block and the reliance on in-patient services.
- 4 *Fostering a culture of inquiry and innovation* by developing the system of NTEC healthcare facilities into an academic health science network, leveraging on its partnership with CUHK Faculty of Medicine and incorporating teaching and research in the roles of all its hospitals, with a view to keeping the Cluster at the forefront of international developments in both health services and health sciences.

Key examples of specific recommendations relating to these overarching strategies are outlined in the following paragraphs.



Provision of Quality District Hospital Services to Each District Covered by NTEC

It is recommended that the service profiles of AHNH and NDH be enhanced for them to function as acute district general hospitals providing emergency care and elective services in the general specialties of medicine, surgery, and orthopaedics and traumatology to their respective districts; while PWH will continue to serve as the acute regional hospital providing tertiary and specialised services for the whole Cluster in addition to secondary care services for its catchment district.

In this regard, the [CWG on Cluster Surgical Services](#) has proposed re-establishing the emergency surgical services at AHNH by phases to fill its service gap as a district hospital and reduce inter-hospital transfers. Enhancement of clinical support services, including intensive care, anaesthesia, diagnostic radiology and pathology services will be required to support the emergency surgical services.

At the same time, it is recommended that convalescent and rehabilitation services be developed in North District to ensure continuity of care for patients in the same district and reduce the need for transferring patients to other districts for extended care. These will be the foci for the next stage of capital development at NDH.

Likewise, recommendations from the [CWG on Mental Health Services](#) have included strengthening acute psychiatric in-patient assessment service at PWH to fill its service gap and provide better care for patients with co-existing medical and psychiatric conditions.

Adherence to the “Localise where Possible and Centralise where Necessary” Principle in Service Provision

Amongst others, the following specialised services in NTEC will be centralised at PWH according to CWG deliberations, although some satellite sites may be developed if there is a critical mass of caseload:

- Oncology services will continue to be concentrated at PWH to capitalise on the expertise and high quality facilities offered by its cancer centre. In view of increased cancer caseloads, the recommendation is to set up satellite chemotherapy service at NDH in an ambulatory setting for the management of simple cancer cases; while radiotherapy service and the treatment of complex cases will remain to be centralised at PWH.
- PWH will remain as a trauma centre and the Cluster’s tertiary referral centre for neurosurgery, cardiothoracic surgery, structural heart intervention and complex arrhythmia.
- As guided by population projection parameters, the [CWG on Obstetrics and Neonatal Services](#) agreed that the development of one large obstetric and neonatal unit at PWH would be adequate to serve the whole Cluster, while AHNH will continue to provide satellite neonatal service to cater for minor neonatal problems.

On the other hand, when clinical services are made available in different locations in NTEC due to increased service demand, the whole service will be organised as cluster-based service network preferably under one governance structure. For example, the urology team is adopting the "one team, three sites" model to support urology surgery services in NTEC. PWH will continue to serve as the tertiary referral centre for kidney transplantation, while AHNH will be the ambulatory and short-stay urology surgery centre.

The Cluster is also exploring a cluster-based approach for peri-operative and ICU services in enhancing multi-disciplinary collaborations, aligning the standard of care, and establishing their governance structures.

Notwithstanding the development of cluster-based services and the concentration of most of the highly specialised services at PWH, both AHNH and NDH are encouraged to develop flagship services as follows:

- Leveraging on the current role and strength of AHNH in the provision of day surgery services, it will be developed into an integrated multi-disciplinary ambulatory care and short-stay centre for the Cluster, with a focus on high volume services such as pain management and elective surgeries.
- The current flagship services of NDH in breast surgery and foot and ankle surgery will be strengthened with better clinical support, so as to further enhance their service standard.
- NDH should build up expertise in the management of infectious and communicable diseases to serve the Cluster, given its proximity to the border with Mainland China and is likely to be in the frontline when dealing with port health issues, such as in managing cross-border infectious disease cases. Together with the continuous development of infectious disease services within the Cluster, an infectious disease service network can be established.

Integration of Services across the Continuum of Care

To meet the healthcare needs of elderly patients and to address access block, NTEC is adopting new service models with a focus on multi-disciplinary care and ambulatory care that will help reduce avoidable admissions as well as facilitate patient flow across the continuum of care, including from A&E departments to the next level of care and transitional care from in-patient to community care.

Through the [CWGs on Ambulatory and Community Care Services](#) and [Emergency Admissions](#), there is a consensus in the Cluster to develop hospital-based ambulatory care centres (ACCs) where a range of day services including diagnostic services and ambulatory procedures such as ultrasound investigation, echocardiogram, endoscopic examination and day surgical services can be provided.

It is also recommended for A&E departments to have access to a greater range of patient management options besides acute hospital admission, so that patients could be channeled to the most appropriate level of care. This includes direct referral to an ACC for the treatment of minor injuries or procedures such as pleural tap; to an extended care setting; and to a community care team if the patients could return home with community support services. A short-stay medical assessment and planning unit (MAPU) would be a useful addition to this strategy.

Likewise, the [CWG on Integrated Elderly Care Services](#) has suggested a stronger collaborative approach between A&E doctors and geriatricians using the "geriatricians at hospital's front door" model. Timely geriatric specialist assessment is to be provided at the A&E departments to older patients and they can be triaged to appropriate level of care. For example, patients enrolled in end-of-life programme can be directly admitted to convalescent wards.

In addition, an integrated, multi-disciplinary musculoskeletal service model throughout the continuum of care is recommended by the CWG on Musculoskeletal Services, with emphasis on acute rehabilitation and integrated ambulatory care. This cluster-wide co-care model promotes proactive and early assessment and management as well as early discharge planning, with inputs from experienced team of orthopaedic specialists, geriatricians and allied health professionals including medical social workers.

Fostering a Culture of Inquiry and Innovation

The development of NTEC into an academic health science network will encompass all hospitals within the Cluster. This identity would facilitate the generation and sharing of knowledge for all healthcare professionals working within the Cluster, as well as promote translational and clinical research in all its hospitals.

Therefore, besides the provision of clinical services, NDH, AHNH, TPH, SH, BBH and SCH shall also include teaching and research in their portfolio. In addition, with PWH being the tertiary referral centre and a teaching hospital, it is well positioned to be the hub of the NTEC academic health science network, offering support to the service development of other Cluster hospitals and taking a leading role in enhancing the standard and quality of care delivered at NTEC, as well as in the generation and sharing of medical knowledge for future generations of healthcare professionals.





Meanwhile, the integrated multi-disciplinary ambulatory and short-stay centre at AHHH shall be operated based on the highest academic standards, with clinical and health services research considered in all modalities of ambulatory care, while providing one-stop clinical care for high-volume ambulatory services for the Cluster.

Moreover, building on the academic health science network concept, it is anticipated that NTEC will form partnerships across sectors and hospital networks. With the announcement of CUHK to develop a private hospital adjacent to its main campus, it is important to consider the impact of the new hospital to the Cluster as well as the potential partnership.

Summary

The recommended strategies outlined in this chapter have been formulated to optimise the provision of clinical services and transform the way services are organised in NTEC, so as to create synergy in the delivery of care in the Cluster to better meet the long-term healthcare needs of the district populations. They reflect the commitment of the frontline staff and Cluster management to improve service alignment and coordination across NTEC. Specific details as well as other strategies are presented in the reports of the CWGs set out in the following chapter of the CSP, and also highlighted in the chapters on role delineation and service development priorities of the Cluster's hospitals.

Clinical Service Programmes



In the consultation process of the CSP, 15 CWGs were set up comprising professionals from different hospitals, specialties and disciplines in NTEC, so as to encourage multiple-level collaborations in the development of strategies for addressing the key challenges facing the Cluster, particularly in relation to service configuration and alignment.

The CWGs broadly fall into three categories reflecting the focus of their deliberations: (i) systems and processes; (ii) clinical programmes; (iii) teaching, training and research. The CWGs under each category are as follows:

- Systems and processes
 1. Emergency Admissions
 2. Ambulatory and Community Care Services
 3. Integrated Elderly Care Services
 4. Cluster Surgical Services
 5. Peri-operative and ICU Services
 - » Sub-group on Peri-operative Services
 - » Sub-group on ICU Services
 - » Sub-group on Pain Medicine
- Clinical programmes
 6. Musculoskeletal Services
 7. Cancer Services
 8. Kidney Services
 9. Gastroenterology and Hepatobiliary Surgery Services
 10. Heart and Lung Services
 11. Neuroscience Services
 12. Mental Health Services
 13. Obstetrics and Neonatal Services
 14. Pathology and Radiology Services
- Teaching, training and research
 15. Education, Training and Research

Outlined in this chapter are the models of care and implementation enablers recommended by the respective CWGs, which were deliberated based on the strategic framework of the CSP and with particular attention on how the roles and services of the NTEC hospitals could be better aligned and optimised to deliver patient-centred care in the Cluster. Members of the CWGs are listed in *Appendix 4*.

EMERGENCY ADMISSIONS

Chair

Dr Nai Kwong CHEUNG Coordinator (Clinical Services) /
Chief of Service (Accident & Emergency), PWH

Co-chairs

Dr Kah Lin CHOO Coordinator (Clinical Services) / Consultant (Medicine), NDH

Dr Francis CHOW Cluster Coordinator (Medicine), NTEC /
Chief of Service (Medicine & Therapeutics), PWH

Access block poses a big challenge in HA hospitals, especially those in NTEC. The impediment to patient flow is more prominent during winter surge. NTEC addresses the challenge by an input-throughput-output model. Different strategies are proposed to reduce avoidable hospital admissions, improve patient care to shorten hospital stay, and facilitate patient discharge while maintaining a good standard of care. The success requires coordination and collaboration among different disciplines in all hospitals and healthcare facilities along the patient journey within the Cluster.

Recommended Model of Care

Input: Reducing Admissions

Apart from the existing Integrated Care and Discharge Support for Elderly Patients (ICDS) programme, the CWG suggests further measures to reduce avoidable hospital admissions by mobilising community resources and keeping patients healthy at the community.

“Geriatricians at Hospital's Front Door” Model

The current utilisation of in-patient services by the elderly population is known to be higher compared to other members of the society, and NTEC is facing an ageing catchment population. It is recommended that the “geriatricians at hospital's front door” model proposed by the [CWG on Integrated Elderly Care Services](#) be adopted at the A&E departments, which are considered as the “front door” of acute hospitals. Under the model, geriatricians will collaborate with the A&E departments to support the assessment and treatment of older patients. Through timely assessment and intervention in the A&E, together with support from the community outreach services team (COST) and other patient management options such as direct referral to convalescent setting, avoidable acute admissions of older patients can be minimised, while at the same time improving their health outcomes.



Throughput: Maximising the Efficiency of In-patient Services

Enhancing Role of A&E Departments in Diverting Patients for Subsequent Care

The role of A&E departments in managing patients along their journey is to be enhanced. Serving as a gate-keeper for in-patient services, A&E departments will refer patients to SOPC, GOPC, ACC, acute wards, or convalescent / rehabilitation wards according to agreed protocol. Emergency medicine ward (EMW) is the platform for case discussion and collaboration across different specialties. Multi-disciplinary input will be gathered, including medical and allied health support, to focus on patients who can be managed within 24 to 48 hours of in-patient stay. After rapid assessment by relevant specialists, patients are then referred to the next level of care.

Streamlining Admission and In-patient Flow

Reform to the existing emergency medical admission workflow is required to optimise the use of hospital beds in the medical department. There will be regrouping of the medical teams to further enhance the collaboration among sub-specialties, minimise intra-departmental patient handover and distribute workload evenly within the department. The admission team will be responsible for taking care of patients when they overflow to other wards.

Common conditions with high service demand are better managed according to agreed protocol. This can apply to conditions such as urinary retention, chronic obstructive pulmonary disease (COPD) and heart failure exacerbations. Appropriate guidelines are also needed to rationalise in-patient consultations among different specialties. Low-priority consultations will be directed to out-patient setting.

Bed Coordination

A mechanism to smooth the patient flow from admission to discharge is essential in all the hospitals within the Cluster. A governing structure has to be established to oversee the whole system issue. A hospital bed coordinator can assist in the process if being empowered and responsible for daily monitoring of patient flow parameters (such as number of admissions, access block data, bed occupancy, patient transfer and discharge data, statistics on extra / overflow beds, outflow to convalescent hospitals, etc.), keeping efficient bed usage, controlling elective admissions and facilitating new admission workflow.

Elective Admission

Most elective patients can be admitted as day patients instead of for in-patient care. This particularly applies to those coming to hospitals for procedures such as intravenous antibiotics administration, which can be performed safely and efficiently in an ACC. The proposed service model of ACC will be discussed in the report of [CWG on Ambulatory and Community Care Services](#) in the next section of this chapter. Changing to this practice can reduce avoidable hospitalisation and also the exposure of patients to potential risks from hospitalisation, such as infection.

Output: Facilitating Discharge

Early Discharge with Support in Ambulatory Setting

Enhancing community support can facilitate the continuum of care. It often relates to a better quality of care and less reliance on in-hospital services. The availability of ambulatory care service plays an important role in patient support after discharge. Patients requiring treatment such as titration of anti-coagulants, out-patient antimicrobial therapy, and follow-up care for COPD, heart failure, or stroke will be able to continue treatment in the ambulatory setting without the need to remain hospitalised.

Technology to Facilitate Community Services

In NTEC, patients and care givers will be empowered in self care with the support of COST in the community. With the support of technology, a dedicated and experienced virtual hospital team can manage the basic clinical needs of patients at home, including those suffering from advanced COPD, malignant pleural effusion with indwelling pleural catheter drainage and pneumothorax with mobile chest drains. Currently, the Respiratory Collaborative Care (RCC) team at NDH uses tele-monitoring to support patient-reported symptom monitoring with automated return instruction and enhance COPD patients' compliance to oxygen and home non-invasive ventilator support. As a result, self-management of diseases is enhanced. The model can be considered to be adopted in other hospitals within the Cluster.

Step-down Care

Coordination of acute and convalescent / rehabilitation beds across the whole Cluster is essential to ensure smooth patient flow. Adequate capacity in convalescent / rehabilitation support should be available in the three districts.





Implementation Enablers

Governance Structure to Oversee Bed Coordination

Access block is a system issue that requires joint effort from administration to clinical staff, and from various specialties in acute and convalescent / rehabilitation hospitals in the Cluster. A governance structure is essential to regularly monitor the situation, identify bottlenecks, revamp the logistics and coordinate the services, so that patients can have access to the appropriate level of care at the appropriate setting in a timely manner. For operation and logistics, a bed coordinator, preferably a senior nurse who is familiar with the situation and management of beds, is essential to coordinate the availability of beds and alert hospital management if required.

Enhanced Diagnostic Services

There is a need to improve the capacity of diagnostic services in NTEC, which is identified as the bottleneck of patient care. Shortening the turnaround time for critical investigations such as cardiac troponin will also expedite patient care.

Patient Empowerment and Tele-monitoring Support

IT infrastructure, both hardware and software, is required to facilitate continuity of care from hospital to community. Tele-monitoring can provide the hospital team with objective information about a patient's conditions at home, allowing early detection of deterioration and enabling proactive intervention via telephone hotline or home visit. With adequate training and partnership between hospital monitoring and community response teams, avoidable hospitalisation can be minimised.

AMBULATORY AND COMMUNITY CARE SERVICES

Chair

Dr Wing Yee SO Deputy Service Director (Quality & Safety), NTEC /
Coordinator (Clinical Services) /
Consultant (Medicine & Therapeutics), PWH

Co-chairs

Dr Eric HUI Cluster Coordinator (Family Medicine & Community Health Services) /
Cluster Coordinator (Community Partnership & Public Private Interface) /
Chief of Service (Family Medicine), NTEC

Dr Ho Yin LEUNG Director (Day Rehabilitation Centre) /
Associate Consultant (Medicine), NDH

The provision of ambulatory care services can reduce avoidable admissions and the potential risks during the course of hospitalisation. Both diagnostic and therapeutic interventions can be provided in an ambulatory care setting. The CWG also deliberated the cooperation with relevant community-based services, which are also important components of the health care system to keep patients healthy in the community.⁸

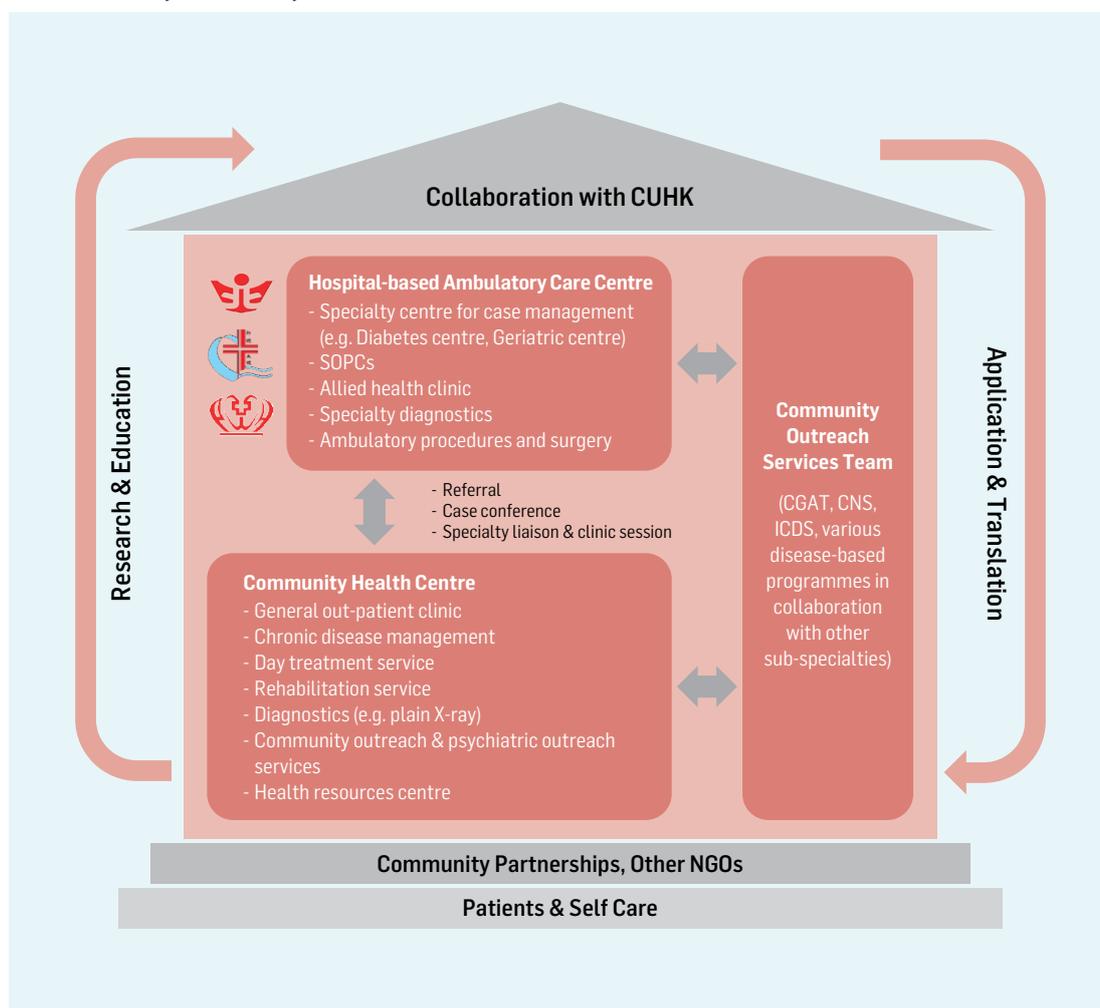
Recommended Model of Care

In NTEC, ambulatory care will be a one-stop service on a multi-disciplinary basis. In this model, patients could obtain medical out-patient services, services from allied health disciplines and investigations that are organised to take place within the course of one day. Complementing the in-patient service and community care, ambulatory care service facilitates the delivery of appropriate care to patients along their patient journey.

The continuum of patient care in NTEC will be supported by ambulatory care services alongside community outreach services. The three core components are the hospital-based ACC, Community Health Centre (CHC), and community outreach services team (COST), for serving different target groups. The model is illustrated in the diagram below.

8 Naylor C et. al. (2013). "Transforming our health care system: Ten priorities for commissioners." Revised edition 1 April 2013. Great Britain: King's Fund (London, England).

Model of ambulatory and community care for NTEC



Hospital-based Ambulatory Care Centre

The hospital-based ACC will serve multiple functions. The centre will be equipped with diagnostic services such as ultrasound, echocardiogram and endoscopy facility, as well as medical and allied health consultation services. It will support the management of patients attending the A&E department. Guided by appropriate clinical protocols, patients from the A&E department can be diverted to the ACC for further treatment. For example, patients attending the A&E department with stable pleural effusion will be seen early in the ACC where ultrasound-guided drainage and diagnostic investigation are provided. In that case, both diagnostic and therapeutic interventions will be provided in the same setting without the need for hospitalisation.

Hospital-based ACC is recommended for the three acute hospitals in NTEC according to local needs. Taking the example at AHNH that focuses on elective surgical procedures, the ACC will serve as the Cluster's ambulatory surgical centre and ambulatory rehabilitation centre, details of which will be further elaborated by the [CWG on Cluster Surgical Services](#) in the later section of this chapter. With the concept of academic health science network, ACC will also facilitate innovation and research development benefiting from the high patient volume.

The hospital-based ACC will also help to strengthen chronic disease management. This can be illustrated by using diabetes mellitus as the prototype of an ambulatory-care-sensitive chronic disease with complex problems. Based on protocol-driven Diabetes Comprehensive Risk Assessment, patients with complicated medical problems will be managed in the ACC under the collaborative care provided by multi-disciplinary team, without the need for hospital admission.

Community Health Centre

CHC aims at keeping people healthy in the community. Under the leadership of family medicine (FM) practitioners, it provides a wide range of primary care services to relatively stable patients, especially those with less complicated chronic conditions. It will also provide rehabilitation service and serves as a health resource centre, so that patients are well supported at the community level and do not require to rely on hospital services.

Community Outreach Services Team

COST comprises community outreach services including Community Nursing Services (CNS), Community Geriatric Assessment Team (CGAT) and ICDS Service. The majority of the beneficiaries are aged patients, especially those who find it inconvenient to travel to hospitals. It will maintain close collaboration with other service modalities such as community health call centre, geriatric day hospital (GDH) and NGOs to cater for specific needs of elderly patients in the community through a multi-disciplinary approach.



Implementation Enablers

Development of Risk Stratification Protocols and Integration in Clinical Pathways

Ambulatory care is one of the key components in clinical pathways. A closer liaison of A&E department, medicine and geriatrics departments, FM departments and COST will be needed to agree on the risk stratification tools and protocols on subsequent care. It is important to streamline the workflow for existing services to improve on diagnostics efficiency, such as expedited turnaround for imaging investigations.

Improvement in Access to Diagnostic Services

Provision of specialty diagnostic services, for example ultrasound and echocardiogram, as well as procedures such as endoscopy in ACCs will facilitate early assessment and workup for patients. Access to these diagnostic services is one of the key factors for successful ambulatory care.

Enhanced Transport Support

Accessibility to ambulatory care service is also a pre-requisite for quality day service. Patients, especially the elderly and people with disability, find it difficult to attend day service. Streamlining the support for patient transport, such as the HA non-emergency ambulance transfer service (NEATS) or those offered by NGOs (e.g. Rehabus), could facilitate patients' timely discharge from hospitals and access to ACCs.

Physical Capacity

The model will be facilitated by expansion of existing ambulatory facilities, and capital planning for the development of CHC in the pipeline. The long-term enabler would see the improvement in capacity, together with dedicated team, space and technology, such as through the Phase 2 redevelopment of PWH. Specifically, a CHC will be incorporated in the PWH redevelopment, and will also be developed in Tai Po and North districts.

Education and Promulgation

Ambulatory care model involves a paradigm shift on how medical services could be delivered efficiently and safely. Thus it is important to identify partners in every discipline to promulgate the integrated ambulatory care model to patients and staff.

INTEGRATED ELDERLY CARE SERVICES

Chair

Dr Elsie HUI Cluster Coordinator (Community Geriatrics Assessment Team), NTEC /
Chief of Service (Medicine & Geriatrics), SH

Co-chair

Dr Emily KUN Chief of Service (Medicine & Geriatrics), TPH

In preparing for the service demand growth arising from the ageing population, NTEC plans to strengthen elderly patient care, equip staff with skills and knowledge in managing aged patients and foster an elderly friendly environment in the Cluster. The ultimate goal is to promote functional independence and quality of life of older patients in the community. The care is person-centred, proactive, timely and coordinated to ensure continuity and proper integration of multi-disciplinary services.

Recommended Model of Care

Aged patients usually present with multiple diseases. Collaboration among different specialists is essential to ensure appropriate care is delivered. A broad-based and holistic approach is adopted to facilitate care coordination. NTEC has implemented the ICDS programme for early identification of high-risk patients and prompt formulation of early discharge plan for them to return to the community. Riding on this programme, NTEC will further improve the quality of elderly care along the patient pathway, as stated below.

(A) In-patient Care

“Geriatricians at Hospital's Front Door”

Being more familiar with the conditions of older patients, the patients at Residential Care Homes for the Elderly (RCHes) and also the support available in the community, geriatricians could assist in developing a care plan when older patients are attending the acute hospitals' “front door”, i.e., the A&E departments. Patients are assessed and their risks are stratified. The aim is to keep patients healthy at the community with adequate support. Acute admission is only reserved for those who cannot be managed at the community with the support of COST and NGOs. Patients requiring early specialist review would attend Fast Track Clinics in the departments of medicine, without being admitted to the hospital.

At AHNH-TPH, “We Care” team has been providing rapid assessment of older patients at A&E by identifying, assessing and triaging them through a collaborative approach of geriatricians and the A&E team. Clinical protocols are established for rapid assessment, treatment and diversion of patients to the appropriate level of care.

Acute Care for the Elderly (ACE) Ward

Designated ACE ward or bed will be used to admit aged patients who suffer from more complicated medical conditions such as delirium, feeding problems, recurrent fall, etc. On top of providing expert care for complex geriatric syndromes, it will also be a place to develop good nursing practices for older patients, such as restraint-free environment.

Geriatric Liaison Services

Older patients admitted to non-medical wards, particularly surgical and orthopaedic wards, would benefit from proactive geriatric assessment and comprehensive peri-operative care in order to minimise complications such as delirium and infections. The service model for geriatric hip fracture proposed by the [CWG on Musculoskeletal Services](#) is a good illustration of such geriatric liaison services.

Convalescent and Rehabilitation Units

Instead of presenting to A&E or admission to acute hospitals, targeted cases such as patients enrolled in the end-of-life programme in RCHes or those in the ICDS programme with a high score on the Hospital Admission Risk Reduction Programme for the Elderly (HARPPPE) can be directly admitted to convalescent wards. Moreover, patient flow from acute to convalescent medical wards will be streamlined by developing agreed guidelines for case selection, improving transfer logistics, enhancing after-hours laboratory and X-ray support in the convalescent setting, and mobilising senior nurses as discharge coordinators.



(B) Community Care

Community Geriatric Services

NTEC will continue the integration of CNS, CGAT and ICDS to COST. The service is overseen by designated governance so as to facilitate patient flow and synergise manpower and clinical expertise. The CGAT is recommended to provide coverage to all RCHEs. CNS plays a key role in supporting patients with chronic conditions. COST also has an important role to provide integrated support for elderly patients after they are discharged from hospital setting.

Disease-specific Integrated Service for the Elderly

For elderly patients suffering from illnesses that require close collaboration of expertise and coordination of care, such as dementia for example, NTEC will adopt a multi-disciplinary approach with geriatric nurses and occupational therapists for earlier assessment and triage of patients. Under this integrated care model, patients diagnosed with dementia can be cared for either in SOPCs, Family Medicine Clinics (FMCs) or referred to NGOs with day and home care facilities, according to the disease profile and co-morbidities. NGOs can also facilitate earlier diagnosis and intervention for patients by screening them for cognitive impairment.

Integrated Elderly
Care Services



Implementation Enablers

Development of Clinical Protocols

Common guideline for the above service model is essential within the Cluster to smooth patient flow. Protocol-driven patient pathway among A&E departments, acute hospitals, convalescent facilities and community services is the key to success for elderly care service in NTEC. Inter-departmental work groups will be set up for collaboration with orthopaedic teams and the A&E departments.

Training and Aligning Good Practices in Care for Older Patients

Caring for older patients is not limited to geriatric service, but also involves other specialties. It is important to align good practices in the care of older patients across the whole Cluster. Geriatric nurses or nurse specialists can play a role in facilitating training for healthcare staff in caring for elderly patients via a formal training programme, and aligning good practices in elderly care across the Cluster.

Enhancement of Community Services and IT Support

To facilitate community rehabilitation, a stronger allied health presence in COST is necessary. Also, IT support could enable COST to work efficiently in the community, enhance communication and handover between the clinical teams, and facilitate the continuum of care across the patient pathway. Easy and fast access to the remote Clinical Management System (CMS) is essential in the community.

Enhancement in Capacity

In acute hospitals, the provision of ACE wards needs to be established. Local step-down facilities are needed at NDH, as well as capacity expansion of ICDS and GDH / community day rehabilitation centres (CDRC) in order to meet growing service demand.

CLUSTER SURGICAL SERVICES

Chairman

Prof Paul LAI Cluster Coordinator (Surgery), NTEC /
Honorary Chief of Service (Surgery), SH & PWH /
Professor (Surgery) CUHK

Co-chair

Dr Heng Tat LEONG Chief of Service (Surgery), NDH & AHNH

The surgical services in NTEC are arranged as a network under a single governance structure. This facilitates the provision of timely emergency surgical intervention for acute patients, service planning and development, sharing of expertise, and staff training and deployment.

Recommended Model of Care

Emergency Surgical Services

Emergency surgical services follow the strategy on "localise where possible and centralise where necessary". With an aim of providing timely surgical care, the CWG suggests restarting the emergency general surgical services at AHNH by phases to avoid delay and excessive inter-hospital transfers. PWH will remain as the major trauma centre for the Cluster. For sub-specialties with sizable caseload, emergency coverage will adopt a cluster-based approach in manpower deployment. The classic example is the service provided by the urology team.

Elective Surgical Services

Cluster-based surgical service is provided in NTEC. Surgical sub-specialty services are arranged according to caseload and the requirement of expertise.

For example, with the changing epidemiology and introduction of territory-wide colorectal cancer screening, the demand for colorectal surgical service is expected to increase. Expansion of colorectal service to AHNH will be necessary to cater for the service demand. In this regard, the three acute hospitals will be providing colorectal surgical service. The same applies to breast surgery as well as hepatobiliary and pancreatic surgical services. The former is centralised at NDH while the latter at PWH. With the expected change in demographic landscape, expansion of both types of surgical services could be considered, and the approach of "one team, two sites" could be adopted. Careful monitoring of service demand will be essential to guide the service expansion.

Some surgical services will still require to be centralised in a single centre for concentrating the expertise and smaller caseload. This includes cardiothoracic surgery and neurosurgery. Both services are provided at PWH. Monitoring of service demand will inform the need for service expansion in the future.

Day Surgery

Day surgical services will be strengthened in the three acute hospitals in NTEC, with AHNH having a stronger presence in day and same day surgical procedures. After completing the assessment in out-patient setting in either PWH, AHNH or NDH, suitable patients in general surgery, urology and other sub-specialties will be admitted on the day of surgery. The practice of day and same day surgery is to be enhanced for other surgical streams such as ENT, ophthalmology and orthopaedics.



Teaching and Research

NTEC strives to develop an academic health science network linking all the hospitals in the Cluster for research and teaching. It is essential for research results to be translated to clinical services for adoption in the health care system. NTEC will provide the platform for integration of innovative science and daily applications.

Implementation Enablers

Cluster Management and Clinical Governance

The advantage of cluster-based service is allowing efficient service delivery and planning, as well as flexible deployment of manpower and rotation to meet the training and service needs. The infrastructure and governance have to be in place to support such service development. A review of the clinical management structure is the essential enabler.

Manpower Support and Other Clinical Specialties Development

With the expansion of services, workforce and physical capacity need to grow simultaneously. Besides operating theatre (OT) capacity, radiology services, pathology services, and convalescent / rehabilitation services will also need to be enhanced.

PERI-OPERATIVE AND ICU SERVICES

Chair

Prof Tony GIN Cluster Coordinator (Anaesthesia), NTEC /
Honorary Chief of Service (Anaesthesia & Intensive Care Unit), PWH /
Chairman & Professor (Anaesthesia & Intensive Care), CUHK

Co-chairs

Dr Phoon Ping CHEN Director (Simulation Training Centre), NTEC /
Chief of Service (Anaesthesia), NDH & AHNH

Dr Sheung On SO Consultant (Medicine) / (Intensive Care Unit), AHNH

Peri-operative service aims at delivering good quality care pre-, intra- and post-operatively through alignment of the standard of care in the three acute hospitals. A multi-disciplinary approach is adopted to streamline patient flow, improve patient experience in the peri-operative settings and enhance surgical outcomes. Pain management and intensive care are the key factors for good post-operative care.

Peri-operative and
ICU Services

Sub-group on Peri-operative (Anaesthetic) Services

The peri-operative model aims to provide the best and efficient patient-centred care. It provides integrated same-day pre-operative assessment and patient education, coordinated admission and operation, and post-operative care for recovery. Nurse-led patient education will align patient expectations, and standardised peri-operative care plans are used for selected operations. For major operations, integrated care pathway is recommended to optimise pain control and enhance recovery, in close collaboration with the surgical team, ward and supporting services.

Recommended Model of Care

Enhancement of Pre-operative Care

Pre-operative care includes pre-operative assessment, optimisation of patients' condition as well as patient education and familiarisation of environment. It is essential to incorporate all these elements in the pre-operative phase for improving patient outcomes and experience, preferably in day care settings such as the ACC. This will avoid early admission of patients.

Standardisation of Structures and Processes Despite Intra-Cluster Variations

There are differences in the structure, process and outcomes of anaesthetic services at PWH, AHNH and NDH. Some standardisation of structures and processes such as peri-operative procedures would streamline patient management at any of the three sites. Also, standardisation of equipment and linkage of information systems would facilitate workflow among the hospitals.

Implementation Enablers

Facilities Support

In the short term, the vacant main OTs at all three acute hospitals should be made operational to meet the needs in NTEC. In particular, at AHNH, local anaesthesia sessions are recommended to be reorganised. In the long term, additional capacity such as beds and OTs will need to be considered. OT sterilisation services will need to be expanded in line with the increasing service demand.

Other Services for Day Surgery

Diagnostic medical and laboratory services, including type-and-screen of blood, require enhancement to streamline patient assessment and admission on the day of surgery. They are important for determining whether the patients can be operated on the day of admission.



Simulation Training

The simulation centre in NTEC also trains healthcare professional staff from other clusters, and is the only centre equipped to provide anaesthesia courses to resident doctors and specialists. This key facility will be relocated from NDH to PWH.

Sub-group on ICU Services

Each intensive care unit (ICU) in NTEC will be supportive to meet the development and service demand of its own hospital. With PWH as a tertiary referral centre for complicated diseases, the ICU at PWH will be developed to also support patients transferred from other hospitals for specialised care. The three ICUs in NTEC will improve cooperation and standardisation to enhance efficiency.

Recommended Model of Care

Collaboration among the three ICUs in the Cluster is essential. It requires efficient referral and transfer of patients for specialised care. The Cluster will establish a structured system for inter-hospital referral with well-defined clinical pathways and coordination, along with an NTEC team to facilitate safe transport of patients. In particular, PWH will continue to admit medical and surgical patients referred from other clusters for specialised care, including neurosurgery and neurology, cardiothoracic surgery and cardiology, major trauma, burns, transplant, and extracorporeal membrane oxygenation (ECMO).

Implementation Enablers

Governance, Collaboration among ICUs, and Scope of Services

A formal platform within the Cluster is required to allow discussion of collaboration among the three ICUs, before an agreeable structure can be established. The CWG suggests periodic reviews and discussions to determine what changes might be made to achieve the best patient outcomes. The discussion shall include the provision of resuscitation service, the role of high dependency units (HDUs) within the Cluster, and patient referral and transfer / transport system.

Staffing and Facility

Medical and nursing staff working in ICUs are highly skilled and difficult to recruit. Training of residents from other specialties in the ICUs would be valuable. This will contribute to subsequent inter-specialty collaboration and consultation, and improve confidence of clinical staff in managing critically ill patients in the general ward and HDUs. The service capacity for ICU and / or HDU will be enhanced in parallel with the growth of hospital services. It is especially important when emergency surgical services at AHNH are to be established.



Peri-operative and ICU Services

Sub-group on Pain Medicine

Good acute pain management facilitates early recovery and decreases the likelihood of progression to chronic pain. A formal acute pain service is recommended in all acute hospitals in the Cluster. Multi-disciplinary chronic pain management is organised as a cluster-based service, aiming to provide interventional services as well as cognitive therapy to patients with chronic pain.

Recommended Model of Care

(A) Acute Pain Service

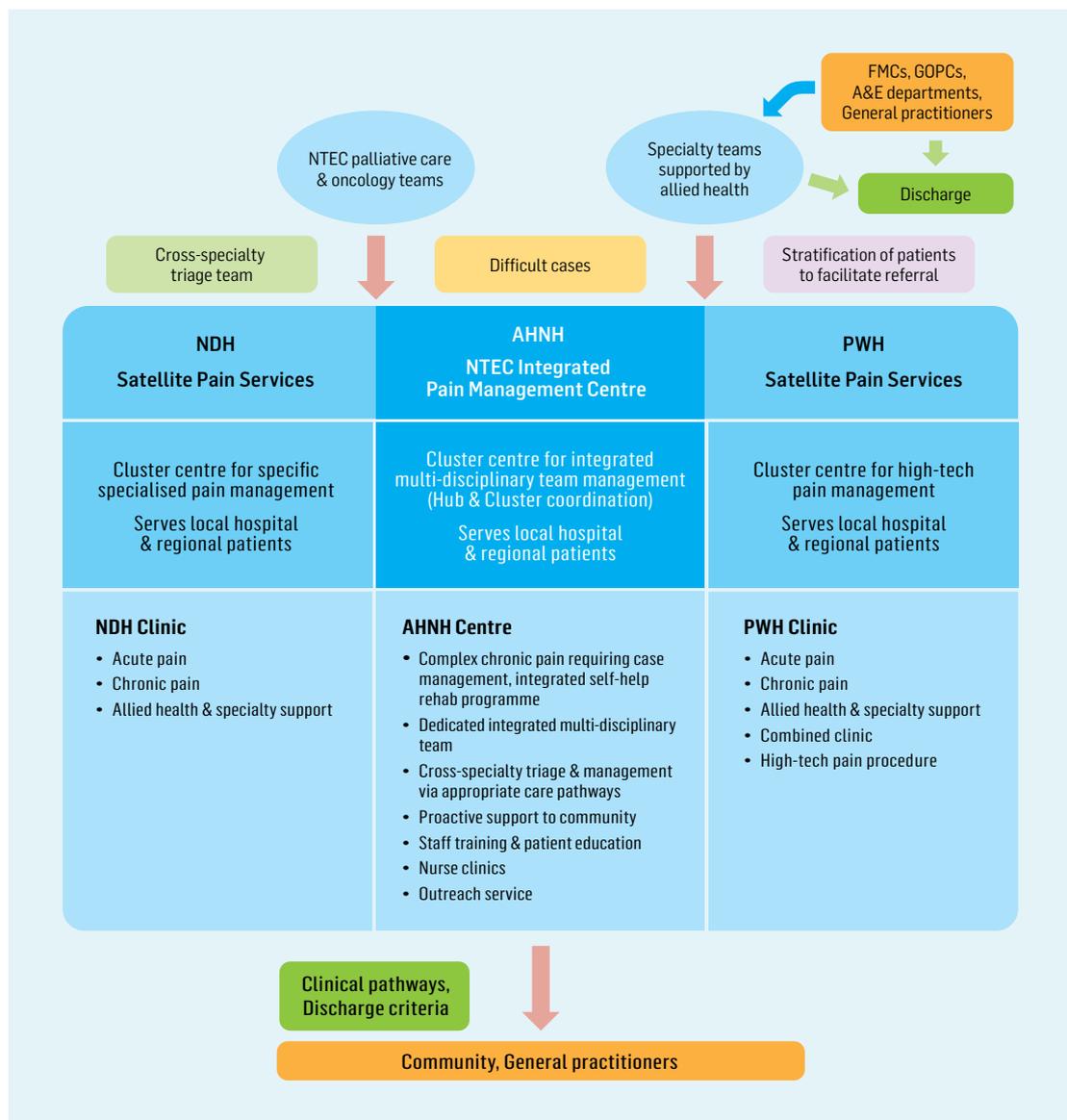
Acute pain service tackles the moderate to severe pain after surgery or acute injury. Optimising post-operative pain control is essential to facilitate early mobilisation and acute rehabilitation. It is recommended that acute pain service should be provided at the three acute hospitals in NTEC.

(B) Chronic Pain Management

Chronic pain service is recommended to be available at each district in NTEC to serve both in-patients and out-patients. Chronic pain (pain lasting for more than three to six months) shall be managed as chronic disease using chronic disease management model. Management strategies for chronic pain include risk assessment and prevention, as well as patient-centred care with emphasis on self-management in partnership with the patients and the community. A multi-disciplinary biopsychosocial model is used. For difficult cases, an integrated inter-disciplinary approach with case management is recommended. The Cluster's service model for chronic pain is depicted in the diagram below.

Ambulatory integrated pain management will be available at the Cluster's designated ACC at AHNH, which will serve as the hub for integrated care for chronic pain management programmes, while PWH will provide innovative pain management procedures.

Service model and structure for pain medicine in NTEC





Multi-disciplinary Approach, Integrated and Coordinated Care

The multi-disciplinary team of medical specialists including pain specialists, nurses, physiotherapists, occupational therapists, clinical psychologists, medical social workers, family physicians and other relevant partner disciplines will provide multi-disciplinary patient evaluation, case conferences, collective management plan, unified patient-centred care pathways, outcomes assessment, and staff and patient education with a standard referral structure across NTEC. Meanwhile, the integrated multi-disciplinary cognitive-based pain intervention programme in NTEC, i.e., the Comprehensive Out-patient Pain Engagement (COPE) programme, has indicated its effectiveness for local patients and could be further enhanced. The coordinated care will also involve primary care support and community partnership. Patient groups will be involved to support patients with chronic pain.

Stratification-based Management

Patient-centred care will follow a standardised assessment and referral structure and unified clinical pathways. Patients will be identified according to their disease stratification. For the difficult and complex chronic pain patients (5% to 10% of patients) with impaired physical functions or psychosocial problems, they will be referred to the NTEC integrated pain management centre at AHNH for multi-disciplinary assessment and integrated care if necessary.

Implementation Enablers

Development of Standardised Care Pathways and Governance Structure

In the short term, there is a need to develop and standardise the disease stratification of pain patients, as well as the referral system. Subsequently, it is anticipated that various components of clinical pathways, such as nurse clinic, multi-disciplinary assessment and case conference, as well as its governance committee at hospital and cluster levels will be established.

Education, Training and Facility

Enhancing the knowledge and skills of frontline staff will better equip the staff on how to manage acute and chronic pain, while at the same time able to offer prevention and management training for patients and their family. In addition, they will be aware of the unified referral criteria and structure to ensure prompt referral when required. Patient education is important to encourage ownership of the clinical care, and enhances compliance in treatment. The above development will be supported by adequate clinical space in the corresponding centres.

MUSCULOSKELETAL SERVICES

Chair

Prof Jack CHENG Honorary Consultant (Orthopaedics & Traumatology), PWH /
Chairman & Professor (Orthopaedics & Traumatology), CUHK

Co-chair

Dr Wency HO Associate Consultant (Medicine & Therapeutics), PWH

NTEC will adopt an integrated, multi-disciplinary, patient-centred musculoskeletal service from acute and rehabilitation through to extended community phases. The model emphasises on acute rehabilitation and integrated ambulatory care. Other key features include proactive and early involvement of experienced multi-disciplinary team of orthopaedic specialists, geriatricians and allied health professionals including medical social workers to facilitate timely intervention and early discharge planning.

Fragility fracture of the hip⁹ is presented to demonstrate the key components of such multi-disciplinary integrated co-care model which has been proven very important for patient outcomes.^{10,11,12,13} The model can be adapted to other orthogeriatric musculoskeletal diseases including osteoporosis fragility fractures, degenerative spine problems, as well as osteoarthritis and rheumatological joint diseases.

9 Fragility fracture of the hip is a complex condition which presents a significant clinical burden to the acute setting, as well as to the rehabilitation and specialist out-patient settings. Currently there are significant service variations and gaps affecting multiple pathways for patients with this complex condition.

10 Grigoryan KV, Javedan H and Rudolph JL (2014) "Orthogeriatric care models and outcomes in hip fracture patients: A systemic review and meta-analysis." *Journal of Orthopaedic Trauma*, 28(3), p e49-e55.

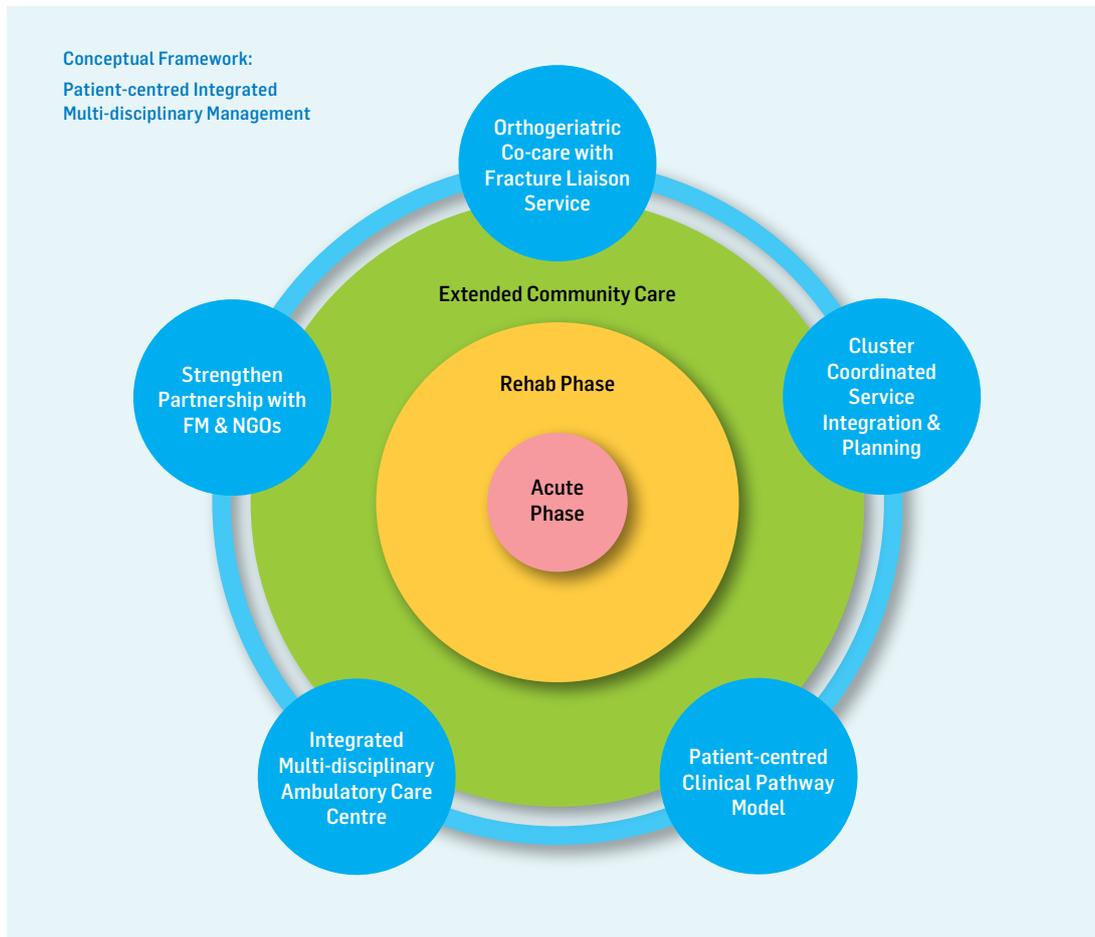
11 Lau TW et. al. (2010) "Geriatric hip fracture clinical pathway: The Hong Kong experience." *Osteoporosis International*, 21(Suppl 4): S627-S636.

12 Ho WW et. al. (2009) "To investigate the effect and cost-effectiveness of implementing an orthogeriatric intervention for elderly patients with acute hip fracture: The experience in Hong Kong." *Journal of the American Geriatrics Society*, 57(11): 2153-2154.

13 British Orthopaedic Association (2007) "The care of patients with fragility fracture."

Recommended Model of Care

The conceptual framework of the service model is presented in the following diagram:



Musculoskeletal Services

Orthogeriatric Co-care and Fracture Liaison Service

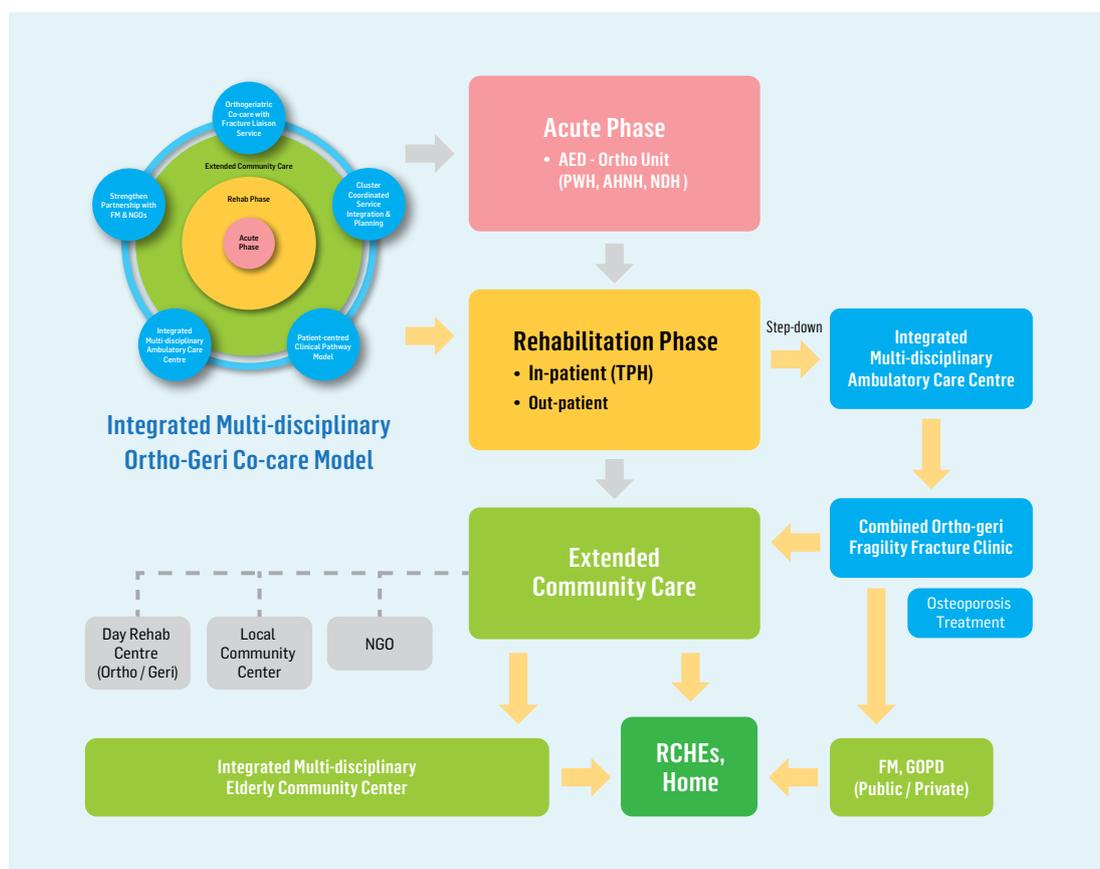
The main objective for the service is to ensure quality patient outcomes, prevent re-fracture and minimise readmission. Using hip fracture as an example, patients admitted after injury will be optimised pre-operatively by geriatrician and anaesthesiologists to ensure definitive surgery is feasible within 48 hours of admission. Rehabilitation will be started soon after the patients are stabilised. Patients will be triaged according to their rehabilitation needs to rehabilitation wards in the acute hospitals, or to convalescent / rehabilitation hospitals for a longer rehabilitation programme. The orthogeriatric co-care team and Cluster fracture liaison service will be responsible for case management and coordinating the patient journey from acute and convalescent phases through to community phase.

It is envisioned that the co-care clinical pathway will be cluster-based, with suitable key performance indicators to evaluate different outcomes. The three acute hospitals will manage patients in their acute phase, while the majority of cluster-based orthopaedic rehabilitation service will be located at TPH. After the in-patient rehabilitation phase, patients will be provided with step-down care either in an ACC or in the community setting.

Integrated Multi-disciplinary Ambulatory Care Centre

A purpose built ACC will provide step-down care to bridge patients from rehabilitation in-patient phase to the community phase of care. It can also support the needs of patients after discharge from acute hospital. There are other services that can be provided in the ACC such as combined fragility fracture clinic, where osteoporosis treatment and secondary fracture prevention can be offered.

The diagram below illustrates the patient pathway of the integrated multi-disciplinary co-care model for patients with fragility fracture of the hip:



Partnership and Collaboration with Community

Since there are multiple parties involved in the community phase, formalising partnership and strengthening collaboration with relevant stakeholders of patient care will facilitate the establishment of this service. These include GDH and Community Day Rehabilitation Centre (CDRC) in the Cluster, existing community centres, RCHes, the patients' families or carers, relevant NGOs, FM practitioners in both the public and private settings, as well as relevant Government services. They can provide district-based rehabilitation service, allied health support as well as osteoporosis treatment and fall prevention.

Implementation Enablers

Clinical Pathway

Cluster-based standardised clinical pathway for common orthogeriatric musculoskeletal diseases is essential in service delivery.

Training, IT and Research Support

The model will be facilitated by structured training for the multi-disciplinary team of healthcare providers involved in the care for elderly patients. To enhance communication for healthcare professionals involved the community phase of care, it will be important to set up a common integrated IT e-documentation platform for supporting the whole patient pathway. Active evidence-based research on the model will also inform the service for continuous improvement of service quality and outcomes.

Facility Design and Appropriate Service Capacity Planning

Relevant modalities for the integrated multi-disciplinary service shall be co-located within the "programme floor" in acute hospitals. Step-down rehabilitation beds shall be incorporated to facilitate commencement of acute rehabilitation as soon as the patients are stabilised, before transferring to rehabilitation hospital for further management if required. It is also recommended to expand the rehabilitation bed capacity at TPH to meet the growing service demand for orthopaedic cases.

Expanding OT time and capacity with a dedicated daytime OT list in the short term is required to facilitate timely surgery. An expanded capacity for allied health and medical social work services will help to maximise recovery support. The CWG also recommends increasing the coverage of allied health service during weekends and holidays for high-risk patients to shorten their length of stay in rehabilitation hospital.

CANCER SERVICES

Chair

Prof Anthony CHAN	Cluster Coordinator (Oncology), NTEC / Honorary Chief of Service (Clinical Oncology), PWH / Chairman & Professor (Clinical Oncology) / Associate Dean (External Affairs), Faculty of Medicine, CUHK
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Co-chairs

Dr Wing Cheong CHAN	Consultant (Surgery), NDH
Dr Janet LEE	Consultant (Surgery), PWH

A multi-disciplinary care model will be adopted for all major cancer types to provide integrated, holistic and personalised care throughout the patient journey. This will be supported by (i) evidence-based management guidelines among Cluster hospitals, and (ii) cancer case managers (CCMs) for facilitating smooth transition across different care settings. Overall, cancer services will be provided in an ambulatory setting as much as possible.

Recommended Model of Care

Coordination Across the Cluster

Patients with suspected cancer will be managed according to standardised care pathways to ensure early diagnosis and appropriate referrals without unnecessary delays. CCMs will act as service coordinators to facilitate collaboration across specialties, and provide education and support throughout the patient journey.

The CWG recommends that multi-disciplinary clinics and chemotherapy service be provided in both PWH and NDH due to the growth of service demand, while radiotherapy service and

hematology-oncology service will continue to be provided at PWH. Cancer-related surgeries will be performed at PWH, NDH and AHNH. Meanwhile, day palliative care service is available at SH, BBH and NDH, while palliative in-patient and home care services are provided by SH and BBH.



Multi-disciplinary, Shared Care Approach

Patient management will be discussed at multi-disciplinary meetings and clinics, with input from healthcare professionals, patients and carers together to develop personalised, patient-centred treatment plans. For non-surgical oncology treatment, they will be managed by clinical oncologists, medical oncologists and haematologist-oncologists working closely in the same department, with input from clinical pharmacists.



As service coordinators, CCMs will follow patients during their course of treatment to monitor the progress and make appropriate referrals when required. Post-treatment surveillance is encouraged to be provided in collaboration with primary care partners.

Palliative care service will be provided to cancer patients in the in-patient, day care or home care settings according to the patients' needs. Multi-disciplinary support teams led by palliative care specialists will provide on-site consultation to patients in acute wards. With better symptom control, early discharges can be facilitated and difficult transfer / discharge cases can be attended to in a timely manner.

Ambulatory Care

Cancer-related surgeries will be performed as day cases where appropriate, with breast cancer surgery as one potential area. Short-course intensive rehabilitation programmes will be adopted to facilitate speedy recovery and early discharge. The majority of chemotherapy will be delivered in out-patient setting.

Implementation Enablers

Development of Guidelines, Protocols and Capacity Improvement

The development of cluster-wide management guidelines and protocols for common cancers will be crucial to the multi-disciplinary ambulatory care model for all major cancers. CCMs will function as service coordinators, enhancing the collaboration with various specialties across hospitals, FM and community partners.

Education and Training to Partners and Patients

With the involvement of multiple parties in the model, the relevant specialties and disciplines across hospitals, FM and community partners will benefit from education and training about the multi-disciplinary care model and the cluster-wide guidelines and protocols that are to be developed. Also, patient education and support from nurse-led clinics, CCMs and home care support teams will facilitate patients and their carers to be able to manage minor symptoms and complications at home or in out-patient setting.

Pathology and Imaging Support

It would be important to enhance the service by facilitating diagnosis and treatment through improvement in pathology support with expansion of molecular and biomarker testing service, and enhancement in diagnostic and interventional radiology services.

Advanced Technology Adoption

The provision of more accurate image-guided brachytherapy is important to patient care, in particular for the treatment of gynaecological cancers. Meanwhile, the capacity and quality of radiotherapy will need to be improved through enhancement in imaging capability and modality, according to service demand and subject to technological advancement.

Pharmacy and IT Support

In order to support the high volume of patients in the ambulatory chemotherapy service, corresponding pharmacy support will need to be available to support the reconstitution and dispensing of chemotherapeutic agents. Medication order entry and laboratory request system will need to be improved to facilitate inter-hospital patient movement and service delivery within NTEC.

Facilities and Transport Support

Oncology in-patient capacity with proper isolation facilities will be important to patients who are immunocompromised or require radiation protection. It will also be imperative to enhance surgical capacity at PWH. In order to better manage service demand in the Cluster, the CWG recommends expanding the ambulatory cancer service at PWH, while satellite cancer day service can be considered at NDH to provide chemotherapy, day surgery and multi-disciplinary consultation services. For patients requiring daily treatment, availability of patient transport service will facilitate them to access services in ambulatory / day care setting more easily.

KIDNEY SERVICES

Chair

Prof Philip LI Service Director (Primary & Community Health Care), NTEC /
Deputy Hospital Chief Executive / Chief of Nephrology /
Honorary Professor (Medicine & Therapeutics), PWH

Co-chair

Dr Simon HOU Consultant (Urology), Surgery, PWH

A cross-specialty, multi-disciplinary care model is recommended for patients with chronic kidney disease (CKD). It will be available in all acute hospitals in the Cluster, with tertiary services at PWH. Care providers including nephrologists, urologists, surgeons, primary care doctors, social workers, physiotherapists, pharmacists, renal nurses, dietitians and the palliative care team will form the multi-disciplinary renal care team.

Urology services will be provided by a Cluster urology team, allowing internal flexibility for cross-coverage, staff rotation and training in the Cluster, while serving three sites with acute urological services.

Recommended Model of Care

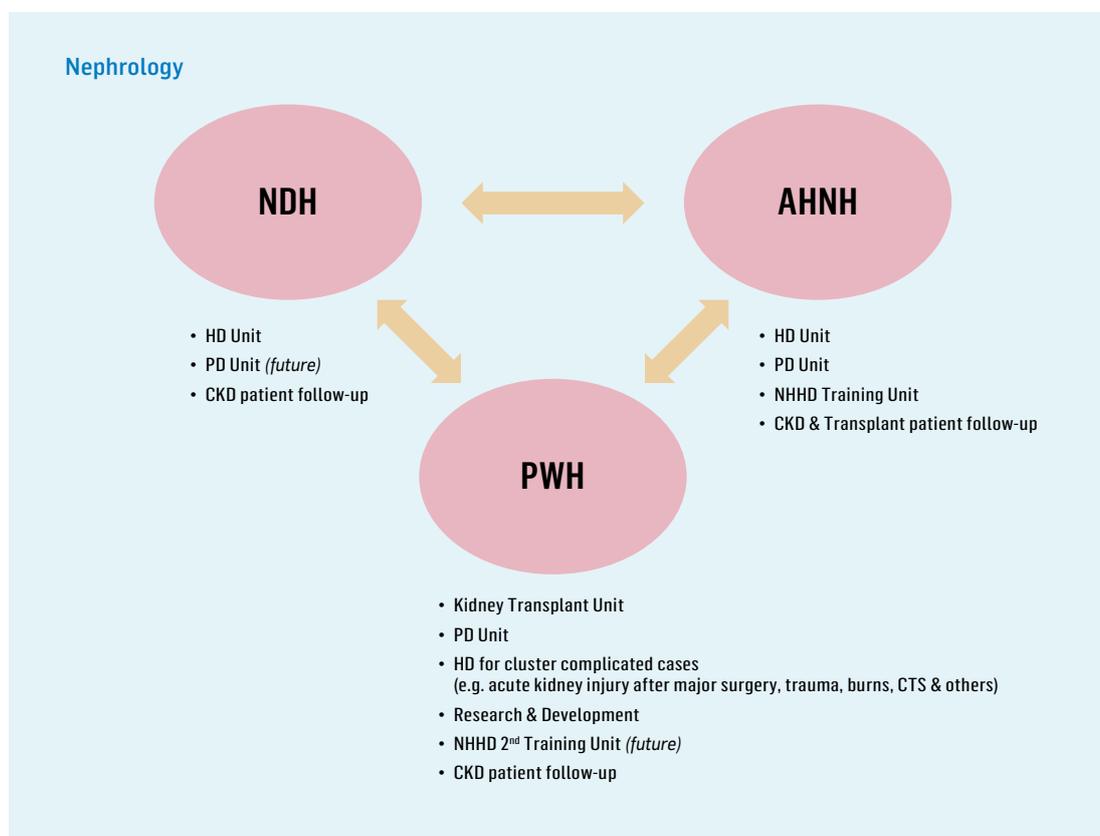
Management of Chronic Kidney Disease

The main focus of managing patients with CKD is to target patients at risk so as to prevent kidney injury, to slow down the decline of kidney function when it occurs, and to provide appropriate treatment for patients with end-stage kidney disease, which includes dialysis, renal transplantation or palliative renal care.

For patients with earlier stages (stages 1 to 3) of CKD, nephrologists and the rest of the multi-disciplinary renal team will collaboratively provide care to patients under a coordinated care pathway. This aims to optimise risk factor control such as glycaemia management and smoking cessation, monitoring of renal function in high-risk patients, as well as protocol-driven referral to specialist renal clinic as required. Patients with CKD stages 4 or 5 will be cared for in "low clearance clinic" to slow down and stabilise the decline of kidney function with the involvement of renal nurse, social worker, dietitian, pharmacist and related surgeons.

For patients requiring renal replacement therapy (RRT) during complicated surgeries or treatment, for example burns, oncology and cardiothoracic surgery, their dialysis support and RRT will be provided by the PWH renal team. PWH will remain to be responsible for all kidney transplantations, while AHNH will continue to provide nocturnal home haemodialysis (NHH) training for patients in NTEC.

The diagram below illustrates the organisation of key services in the three acute hospitals to support patients with CKD:

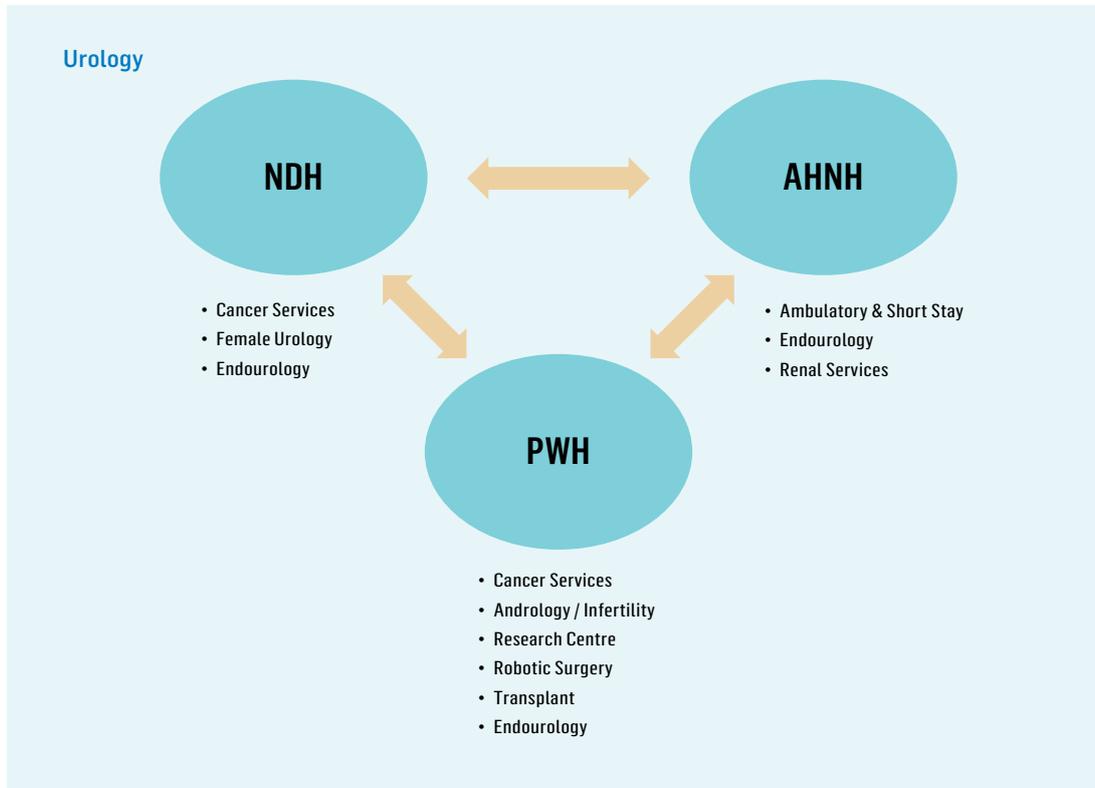


Urology Services

The three acute hospitals, PWH, NDH and AHNH will provide on-site acute urologic surgery service, while PWH will continue to be the tertiary referral centre and will provide kidney transplantation. In the intermediate and long term, the three acute hospitals will take on different roles in the provision of urology surgery.

PWH will continue to provide kidney cancer services, transplantation, andrology / infertility, endourology, robotic surgery and gender identity surgery, while also serving as a research centre for kidney diseases. NDH will provide urologic support for cancer services, female urology and endourology. AHNH will be the ambulatory and short-stay urologic surgery centre for NTEC, providing ambulatory and short-stay surgery for urology patients, accommodating all non-complicated endourology cases in NTEC, and also providing one-stop clinics such as prostate clinic or stone clinic. It is envisioned that the majority of elective RRT-related surgical procedures will be provided at AHNH.

The organisation of the future urology services in NTEC is illustrated in the diagram below:



Implementation Enablers

Review of Guidelines and Protocols

In the short term, the urology team would revisit all management guidelines and protocols and collaborate with other specialties involved to improve the efficiency and safety of urologic care in NTEC. Regarding RRT-related surgeries, a task force involving urologists, vascular surgeons, intervention radiologists and nephrologist will collaborate to streamline the service, with an aim of having a single waiting list for surgery at the future ambulatory surgery centre at AHNH. Specifically, the task force will set up standard management protocol for end-stage renal failure patients.

Expansion of Service Capacity

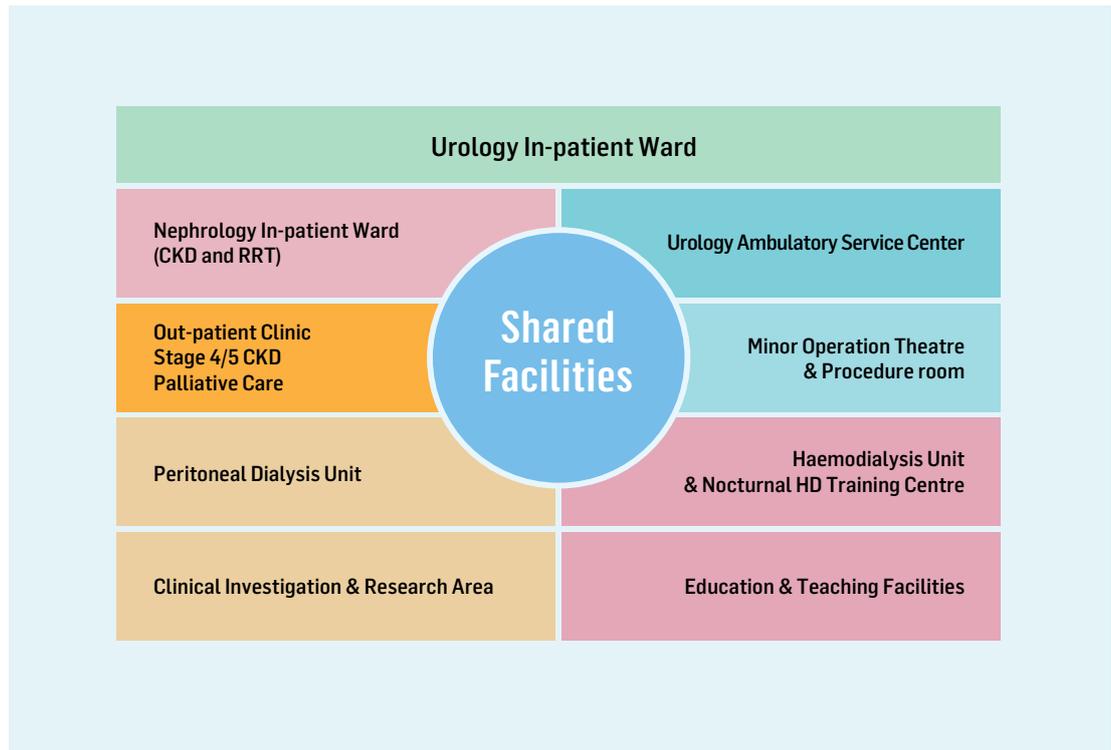
In general, haemodialysis (HD) facility and related surgical service will need to be improved in the Cluster. Expansion for the rehabilitation service in NTEC for dialysis patients, both for those on HD and peritoneal dialysis (PD), are also recommended. The establishment of another PD unit at NDH will be considered with reference to the service demand growth in North District. The same applies to NHHD training capacity in the Cluster so as to improve patients' access to the training in NTEC.

Meanwhile, the CWG recommends for AHNH to develop an ambulatory surgery centre for urology surgery in phases, to offer short-stay surgery service and improve pre-operative assessment clinic service. In the long term, this centre can provide Urology ward with 24-hour emergency services and admit emergency urology cases to relieve the bed pressure of NDH. This centre shall increase its general anaesthesia and local anaesthesia OT session to accommodate the service demand from population growth.

Facility Arrangement

A "programme floor" for kidney services is recommended in the future PWH redevelopment project to house nephrology and urology together in shared facilities, such as out-patient clinic, in-patient ward, and education and research area. It will also help to integrate the urology services in a Urology Service Centre of the Cluster, serving as the tertiary centre for extracorporeal shock wave lithotripsy, advanced urodynamic studies, urological endoscopy, nurse clinics, and education and research. The CWG recommends the "low clearance clinic" to be located at the "programme floor", and the RRT and NHHD training centre in close proximity to each other. An illustration of the "programme floor" for kidney services is shown below.

Key components of a "programme floor" for kidney services



GASTROENTEROLOGY AND HEPATOBILIARY SURGERY SERVICES

Chair

Prof James LAU Honorary Director (Endoscopy Centre) /
Honorary Consultant (Surgery), PWH /
Chairman & Professor (Surgery), CUHK

Co-chairs

Dr Moon Sing LAI Chief of Service (Medicine), NDH

Dr Kit Fai LEE Consultant (Surgery), PWH

The CWG recommends a patient-centred and disease-specific service for patients suffering from gastrointestinal (GI) and liver diseases, by collaborative effort from GI physicians, radiologists and surgeons. With changing disease epidemiology, endoscopy service will be one of the main foci in the future because of GI cancer screening and early cancer detection. In collaboration with the CUHK Institute of Digestive Disease at PWH, clinical research, teaching and training across different disciplines will be closely integrated with the clinical services in NTEC.

Recommended Model of Care

GI physicians, radiologists and surgeons will be working as a single team together to provide diagnostic and therapeutic services for patients with GI and liver disease. Cross-specialty cooperation in decision-making and experience sharing is anticipated. It can be carried out through joint clinic arrangement such as inflammatory bowel disease clinic, hepatocellular carcinoma clinic, etc. Adoption of common disease management protocol can ensure continuous improvement in the standard and quality of patient care.

Implementation Enablers

Capacity Building

With the support from Government policy, cancer screening will allow early detection of cancer cases in the next decades, and preparation for such service demand will be necessary. NTEC needs to consider facility improvement to cater for the service demand arising from large bowel cancer screening.

It is recommended to expand the capacity of endoscopy centres in the three acute hospitals in NTEC either by expansion of current facilities, new building development or extension of service hours. AHNH will be the major ambulatory endoscopy centre for the Cluster, and emergency GI service is to be reinstated in the hospital.

Facility Design

The concept of "programme floor" will facilitate the cooperation and collaboration of GI physicians, surgeons and radiologists. For example, a liver disease unit will provide fibroscans, ultrasound scans, endoscopy service, and endoscopic ultrasound service. Physicians, surgeons and radiologists are to work at the same site to deliver this one-stop service for patients in need. The Cluster could ride on the opportunity of PWH Phase 2 redevelopment to provide the desired design of the facilities. Research facilities can also be incorporated within the "programme floors".



HEART AND LUNG SERVICES

Chair

Prof David HUI Honorary Consultant (Medicine & Therapeutics), PWH /
Professor (Medicine & Therapeutics), CUHK

Co-chairs

Dr Joseph CHAN Consultant (Medicine & Therapeutics), PWH

Prof Malcolm UNDERWOOD Honorary Consultant (Surgery), PWH /
Professor (Surgery), CUHK

Cardiac Services

An integrated cardiac service will be provided within the Cluster, with close collaboration among different hospitals, specialties and disciplines. Hospitals in NTEC will have a clear role delineation to provide different services ranging from acute cardiac interventions, non-invasive cardiology services to cardiac rehabilitation. Cluster-based integrated programme and pathways are also recommended.

Recommended Model of Care

A cluster-based model will be adopted for the cardiac service in NTEC. PWH will serve as the Cluster's centre for primary percutaneous coronary interventions (PCI), aiming for rapid transfer of patients to the catheterisation laboratory at PWH. The Cluster will aim to implement 24-hour primary PCI service for ST-elevation myocardial infarction. PWH will also remain to be the tertiary referral centre for structural heart intervention, thoracic surgery and complex arrhythmia. NDH will be able to handle acute cardiac cases during daytime, while ANHN will provide phases 2 and 3 cardiac rehabilitation service and non-invasive cardiology for the Cluster. The Cluster collaboration will facilitate staff development through organised training and rotation among Cluster hospitals.

Integrated cardiac service will be provided by the "heart team" which consists of cardiothoracic surgeons, cardiologists and cardiac anaesthesiologists. Through discussion with the patients, it will provide assessment and make appropriate care planning collectively.

Implementation Enablers

Strengthening Integrated Programmes and Pathways

Existing cluster-based integrated programmes and pathways including those for cardiac and peripheral vascular surgery, cardiac intervention, imaging and rehabilitation, as well as training of staff, will be strengthened to provide efficient and high quality cardiovascular service in NTEC.

Facilities, Manpower and IT Support

The Phase 2 redevelopment of PWH will facilitate the integrated cardiac service to be on a “programme floor”, with dedicated and rapid access from A&E department to the catheterisation laboratory, and in close proximity to the OTs. It would also provide adequate in-patient and ambulatory capacities to cater for the cluster-based cardiac and peripheral vascular surgery and interventional services. The cardiac “programme floor” will be supported by dedicated hybrid cardiac theatre and hybrid peripheral vascular theatre. Meanwhile, it will be crucial to have a combination of nursing manpower of cardiac care unit (CCU) and surgical HDU, as nurses in these units share similar skills and knowledge set. Multi-purpose facilities are also required to facilitate simulation training, ideally live broadcast from OTs and catheterisation laboratory.

Thoracic Services

The Cluster strives to provide high quality care by localising the services where appropriate, and only centralising when necessary.

A hospital-based, multi-disciplinary, integrated care model will be adopted in the Cluster for the treatment of high volume chronic respiratory diseases such as COPD. Patients will be treated in acute hospitals during exacerbation and supported by convalescent

hospitals after stabilisation. CNS, allied health support and ambulatory rehabilitation will form an integral part of effective chronic disease management. Patients with complex conditions (such as diagnosed lung cancer, or respiratory failure in need of titration for respiratory support) and those requiring thoracic surgery or suffering from sleep issues will receive service from PWH.



Recommended Model of Care

The three acute hospitals play a different role in managing patients with respiratory diseases. Given the high volume of COPD cases, every acute hospital within NTEC is recommended to strengthen the existing pulmonary rehabilitation programmes with an aim of reducing patient re-admissions and their hospital length of stay. Subject to the service demand in NTEC, the three acute hospitals shall enhance the service capacity for the investigation of suspected lung cancer.

Medical patients with respiratory failure would be centralised in designated ward area for non-invasive ventilation so that pressure titration and monitoring could be performed under supervision by respiratory specialists. PWH will remain as the tertiary centre for major thoracic surgery and complex interventional procedures such as bronchial artery embolisation. PWH will also set up a “one-stop lung nodule clinic” that allows fast track investigation and management of patients with suspected lung cancer.



Subject to the overall policy direction in HA on the development of sleep laboratory, the CWG proposes the establishment of an integrated sleep laboratory at PWH with service collaborations with specialists from respiratory medicine, psychiatry, paediatrics, ENT and neurology, for better management of routine elective cases within PWH.

Implementation Enablers

Facilities Support

With the opportunity of the PWH Phase 2 redevelopment, an integrated thoracic unit will be provided, interconnecting with relevant services such as respiratory medicine, thoracic surgery, HDU, interventional pulmonology suite and lung function laboratory.

NEUROSCIENCE SERVICES

Chair

Prof Lawrence WONG Honorary Consultant (Medicine & Therapeutics), PWH /
Professor (Medicine & Therapeutics), CUHK

Co-chairs

Prof Wai Sang POON Honorary Consultant (Neurosurgery), Surgery, PWH /
Professor (Surgery), CUHK

Dr David SUN Deputy Service Director (Quality & Safety), NTEC /
Coordinator (Clinical Services), NDH /
Consultant (Neurosurgery), Surgery, PWH

Prof Yun Kwok WING Honorary Chief of Service (Psychiatry), PWH & SH /
Professor (Psychiatry), CUHK

The CWG recommends a cluster-based, multi-disciplinary and holistic health care service for patients with neurological disease, including stroke, movement disorder and epilepsy, brain and spinal cord tumours, as well as brain haemorrhages. Stroke service is presented here to demonstrate the approach for cross-specialty neuroscience services, while the model can be adopted to other neurological diseases.

PWH will continue to serve as a tertiary referral centre for neurosurgical cases, while a network for neuroscience will be established within the Cluster.

Recommended Model of Care

Integrated Cross-specialty Approach

A clinical neuroscience service will be established at PWH for integrated management of patients with neurological diseases. Members of the multi-disciplinary team include neurologists, neurosurgeons, radiosurgery team, oncologists, psychiatrists, neuropsychologists and endovascular interventionists where appropriate.

Thrombolysis and Thrombectomy Service

NTEC strives to expand the stroke thrombolysis service at AHNH and NDH provided by the cluster-based team from PWH. This will require the use of tele-consultation services. To minimise door-to-needle time, stroke nurse will start assessing acute stroke patients from the A&E triage station, in parallel with A&E evaluation. The team will liaise with radiologists when eligible patients are identified. Furthermore, cluster-based acute thrombectomy service (endovascular treatment for hyper-acute ischaemic stroke) has great potential for future development.



Advanced Technology

The Cluster will provide enhanced electrodiagnostic support as well as electroencephalography (EEG) monitoring, video monitoring for Parkinson's disease patients, and neurological diagnostics. At the same time, NTEC will also adopt new modalities of investigation and treatment in functional neurology, neurosurgery and psychiatry.

Implementation Enablers

Development of Protocols and Admission Priority

Admission priority for acute stroke patients from A&E into acute stroke unit (ASU) will be important. It is recommended that patients at AHNH and NDH who require endovascular treatment be transferred to PWH to facilitate prompt treatment. Meanwhile, the CWG recommends extending the service hours of thrombolysis service at AHNH and NDH.

Facility, Equipment and Technology Support

Overall, a telemedicine centre is recommended to be established at PWH to provide support to the whole Cluster for the management of acute stroke, trauma and other acute neurological emergency using modern technology. When on-site specialists are not available, tele-consultation will be facilitated through video conferencing, tele-radiology and remote electronic access to patients' health records via mobile devices or workstations.

It is recommended that a functional neuroscience unit be established as a cluster-based, multi-disciplinary monitoring unit, with rotational training for doctors from within NTEC. In essence, the unit can be viewed as having two components: a monitoring unit for epilepsy and a neuromodulation unit for patients who require brain stimulation. For the movement disorder and epilepsy service, designated facilities are suggested for pre-operative assessment and post-operative deep brain stimulation programming, as well as for pre-operative assessment and post-operative full assessment.



The “programme floor” concept can be applied to neuroscience services to accommodate a cross-specialty stroke care service, with the aim of achieving the shortest possible door-to-treatment time by minimising inter-departmental patient transfers. At PWH, the “programme floor” for neuroscience services is recommended to include facilities such as HDU, admission and neuroscience ward, ambulatory care unit and electrophysiology diagnostic laboratory, and with ready access and close proximity to ICU, OT, and intra-operative and diagnostic magnetic resonance imaging (MRI). The CWG recommends NDH to set up its neuro-rehabilitation facility, while infrastructure can be set up at PWH to facilitate telemedicine for stroke management in the whole Cluster.

MENTAL HEALTH SERVICES

Chair

Prof Linda LAM Cluster Coordinator (Psychiatry), NTEC /
Chairman & Professor, (Psychiatry), CUHK

Co-chair

Dr Dicky CHUNG Chief of Service (Psychiatry), AHNH & NDH & TPH

The CWG recommends a personalised mental health service in the Cluster, provided through a multi-disciplinary, community-based approach. On top of coordinated in-patient services, provision of district-based core out-patient, ambulatory and community-based psychiatric services will be necessary, especially for common mental disorders.

Service development is supported by evidence-based practice and training through strong university collaborations on novel research, and sub-specialty services in psychiatry, as well as collaboration with NGOs to support patients in the community. For patients with mental health issues requiring hospital care, it is recommended that a therapeutic environment with tranquility be provided.

Recommended Model of Care

Centralisation of Gazette Beds and Child and Adolescent Psychiatric Services

Through cluster-based organisation, psychiatric services for severe mental illnesses will continue to be centralised at TPH where gazette psychiatric wards are located. AHNH is the only centre providing child and adolescent psychiatric services in the Cluster. Apart from expanding the existing service to cater for growing service demand, there is also a service need to establish in-patient units for patients with learning disabilities and substance abuse problems.

Localisation of Psychogeriatric Service

In-patient psychogeriatric care will continue to be offered at SH but expansion at TPH might need to be considered according to the change in population structure and the rapid rise in service demand. In the long run, psychogeriatric patients in the Cluster should be able to seek medical care at the district where they reside.

Acute Psychiatric Liaison

There is no acute psychiatric in-patient service at PWH, so psychiatric patients requiring medical care will need to be taken care of in a medical acute ward. This creates pressure especially at times of winter surge. Acute in-patient psychiatric assessment and short-stay treatment are recommended to be made available at PWH to cater for the need of patients with co-existing medical and psychiatric problems.

Community Support for Common Mental Disorders

Service to patients with common mental disorder will be made available at the district level in NTEC. The service focuses on collaboration with community partners, so that patients will receive adequate support when returning to the community. While time-limited psychosocial intervention will be provided to patients with common mental disorder at psychiatric clinics, it is important for psychiatrists to collaborate with primary care physicians in assisting patients to maintain good functioning in the community.

Implementation Enablers

Development of a Small In-patient Unit at PWH

An acute psychiatric in-patient assessment service is recommended to be set up at PWH, so as to provide better care for patients requiring psychiatric care arriving at PWH, especially those who suffer from both acute psychiatric and medical conditions.

Enhancement to Service and Environment for Patients with Special Needs

Enhancement to in-patient environments and ambulatory care programmes with separate treatment and special considerations for different groups of patients will be important to deliver effective care. Patients suffering from psychotic disorders, substance abuse, depression and anxiety disorders, learning disability, and also children and adolescents with attention deficit hyperkinetic disorder and autistic spectrum disorder would have very different needs.

Facilities Support

The psychiatric in-patient facilities in NTEC will need to be optimised for improving care quality and treatment outcomes. For example, improvement to the facilities for the TPH psychiatric in-patient unit is needed, with more spacious ward to facilitate patient care for different psychiatric cases, reducing the risks of violence to patients and staff and improving infection control. TPH will continue to serve as the Cluster's hospital for admitting patients under the Mental Health Ordinance. The psychiatric in-patient unit at TPH will need to be improved with a friendly and facilitative therapeutic environment to support patients who require acute and rehabilitative psychiatric care.

Training

Meanwhile, besides closely observing the service demand of the expanding population in North District, especially for child and adolescent psychiatric services and also for in-patient services, it is important to provide training platforms for medical, nursing and allied health professionals in the Cluster on the care for patients with mental health issues, and facilitate the development of new technology as well as device-based assessment and management of psychiatric disorders.

OBSTETRICS AND NEONATAL SERVICES

Chair

Dr Tak Hong CHEUNG Chief of Service (Obstetrics & Gynaecology), NTEC

Co-chair

Dr William WONG Chief of Service (Paediatrics), PWH

The obstetric and neonatal service in NTEC is organised as a cluster-based service to ensure comprehensive quality service in a cost-effective manner. The antenatal and post-natal obstetric service will be provided in out-patient and day care settings while one large obstetric and neonatal unit at PWH will support in-patient care. Subject to service demand, satellite out-patient clinics and day service centres will be considered at different sites in NTEC to improve the accessibility of obstetric services.

Recommended Model of Care

Obstetric Service

Modern obstetric service begins before the planned conception among high-risk obstetric patients. The patients would benefit from pre-conception clinic that provides advice and treatment prior to pregnancy. For high-risk pregnancies, patients will be taken care of in day care centre when prolonged monitoring is needed, such as blood pressure control in pre-eclampsia. Post-natal support will be given in out-patient setting to support early discharge after delivery and enhance breast feeding promotion. In-patient obstetric service will have a close relationship with round-the-clock neonatal intensive care support.



Obstetrics and Neonatal Services

Neonatal Service

PWH will offer Neonatal ICU (NICU) and Special Care Baby Unit (SCBU) for the Cluster, while AHNH will continue to provide satellite neonatal service to cater for minor neonatal problems such as jaundice.

Emergency Transfer

With one designated NICU in NTEC, A&E colleagues will be trained to handle obstetric emergencies, escort labouring patients, as well as resuscitate and transfer newborns. Periodic review of service demand, in terms of population growth and anticipated annual deliveries within the Cluster, will be performed to ensure the obstetric and neonatal service development is synchronised.

Implementation Enablers

Improvement in Facilities

To facilitate a tighter collaboration between obstetric and neonatal services at PWH, it is proposed to locate relevant facilities such as obstetric unit, labour rooms, OTs and NICU in a well-integrated unit for the Cluster. Labour ward is recommended to be on the same floor as the antenatal ward and is closely connected to the NICU. Besides, facility will be available for the monitoring of high-risk patients before and after delivery.



PATHOLOGY AND RADIOLOGY SERVICES

Chair

Dr Michael SUEN Cluster Coordinator (Pathology), NTEC /
Coordinator (Clinical Services), AHNH & TPH /
Chief of Service (Pathology), NDH & AHNH

Co-chairs

Dr Paul LEE Chief of Service (Diagnostic Radiology), AHNH /
Chief of Service (Radiology), NDH

Dr Jeffrey WONG Chief of Service (Imaging & Interventional Radiology), PWH

Pathology Service

Pathology, similar to Radiology, is an important supporting service to other clinical services in the Cluster. The service scope and team recommended for the future will be based on the existing framework. 24-hour specialist coverage will be provided by specialists from PWH for chemical pathology and immunology, as well as for microbiology and virology; and by specialists from PWH and NDH for haematology. As for anatomical pathology service, its two training centres at AHNH-NDH and PWH will continue to support surgical services (including biopsy, surgical excision and frozen section), cytology (including fine needle aspiration) and autopsy.

Recommended Model of Care

The recommendations will be divided according to the service locality.

PWH

Chemical Pathology

It is recommended to set up a bioinformatics centre for accurate diagnosis, early detection of relapse and guidance of target therapies for cancer patients, which shall be facilitated by IT infrastructure. A centrally-funded, cluster-based molecular diagnostic service would provide high quality genetic testing to cope with the increasing demand in routine diagnostics and care pathways. Subject to corporate direction, the Cluster may consider planning for an osteoporosis diagnostic centre for biochemical monitoring of medical therapy for osteoporosis.



Pathology and Radiology Services

Microbiology (and Virology)

Along with the installation of Total Laboratory Automation and Matrix-assisted Laser Desorption / Ionisation Time-of-flight (MALDI-TOF) system, general molecular service will continue to implement rapid molecular testing services as well as other tertiary services required to support PWH and the rest of the Cluster.

Haematology

As a regional centre that integrates both blood cancer cytogenetics and genetics into a combined service, a blood cancer genomic centre is recommended at PWH to facilitate the scientific training of clinical and technical staff. Stem cell laboratory will continue to cope with the increasing demands on stem cells transplant from adult oncology patients, and to support autologous stem cell transplantation in other hospitals. Meanwhile, the application of flow cytometric service will be expanded to support diagnosis. There will be a flow cytometric centre to conduct minimal residual disease monitoring to guide treatment selection, including decision of stem cell transplantation.

Histopathology

There is a need for frozen section service to be performed within the OTs, as well as on-site imaging guided fine needle aspiration. In-depth classification and biomarker testing particularly related to the rapid advancement of targeted therapy shall be facilitated by suitable hardware and IT infrastructure, as well as a bioinformatics team. Meanwhile, the establishment of biobank is of paramount importance for patient management, research and clinical trials, especially in view of the increasing recognition of the importance of clinical pathway-driven management and personalised medicine.

AHNNH / TPH

At AHNNH / TPH, enhancement to the rapid response laboratory will be important, besides improvement to the blood bank to cope with the progressive re-establishment of emergency surgery at AHNNH. Also, since it will be necessary for on-site microbiology tests to support the triage of patients, especially during winter surge and outbreak, it will be imperative to retain the microbiology laboratory at AHNNH, while PWH will be providing 24-hour service to support the pathology services. Moreover, in order to support AHNNH as an acute district general hospital, it is recommended for general anatomical pathology service to be available within the pathology department, including surgical pathology, cytology and frozen section laboratory.

NDH

In view of the hospital's close proximity to the border, it will be important for NDH to set up a general microbiology laboratory, with automation for on-site triage and outbreak screening of patients. General anatomical pathology service shall also be available, including surgical pathology, cytology and frozen section laboratory. PWH will provide 24-hour specialist-led service to support the pathology services at NDH.

Implementation Enablers

The CWG has identified the key enabler to be the provision of additional technical support for 24-hour laboratories at AHNH and NDH, in order to support the service needs in the Tai Po and North districts. In addition, automations in laboratories will improve the efficiency of the various pathology services to cope with the increasing service volume. Standardised protocols are also necessary for the selection of suitable patients for genetic / genomic testing and to ensure appropriate counselling and follow-up. Subject to corporate direction, the development for biobank management in NTEC will need to be supported by proper governance structure, while bioinformatics centre and histopathology service will be facilitated by IT infrastructure, including high-speed connection and high capacity for data storage.

Radiology Service

Radiology service in NTEC is recommended to be coordinated under one Cluster Service Director to achieve high quality diagnostic and interventional radiology support for all in-patient and ambulatory radiology services in the Cluster. The Radiology units at PWH, AHNH and NDH are to provide quality service to each district to meet the local needs for imaging. Avoidable inter-hospital patient transfers or potential delay shall be minimised. The spectrum and complexity of imaging services offered in the hospitals are to be in line with their delineated roles.

Recommended Model of Care

The imaging unit at PWH will provide imaging services for SH, SCH and BBH, with PWH continuing as the tertiary referral centre for highly complex services, such as neurosurgical and cardiothoracic surgical services. The imaging unit at AHNH will provide imaging services required at AHNH and TPH, with special emphasis on supporting ambulatory services; while the unit at NDH will provide imaging service to NDH. Moreover, further collaboration in cluster-based services such as Nuclear Medicine and Breast Imaging is encouraged, as well as enhancement of training programme and research activities for imaging services throughout the Cluster.



Support for In-patient Services

It is recommended that imaging facilities shall be easily accessible to provide better support to major areas of acute patient care such as trauma room, ICU and endoscopy centre, and also to help minimise the need for intra-hospital transfers.

Support for Ambulatory Service

The development of one-stop imaging service in collaboration with respective clinical teams will be important to support the ambulatory services in the Cluster. A large imaging centre close to the ACC will expedite the clinical workflow of diagnostic imaging services for a large patient volume. Meanwhile, less sophisticated interventional radiology services (such as ultrasound-guided drainage procedure or biopsy) or day-case interventions (such as local ablative therapy or transarterial treatment for oncology) can be considered in collaboration with the services offered at the ACC to minimise hospital admission.

Service Organisation

The Radiology service in NTEC will be coordinated under one Cluster Service Director to serve the three districts in NTEC.

Implementation Enablers

Collaboration Among Acute Hospitals and Optimisation of Workflow

Dialogue will be continued with clinical departments to review the current service model and to rationalise imaging requests so as to optimise the service. It will also be important to enhance the collaborative work of the three acute hospitals, and to acquire relevant imaging facilities in phases to meet the local needs.

Training and Manpower Support

The intermediate-term enablers will be the provision of staff training for sub-specialty development, especially novel techniques in interventional radiology. There is a need for an overall manpower review and adjustment to cope with the service demand and mode of service delivery.

Equipment and Facilities Support

Enhancement in imaging capabilities for NDH and AHNH will be important to provide timely and appropriate imaging service, so as to avoid unnecessary inter-hospital transfer of patients for imaging services.

A central location of imaging services within the hospital complex, such as enabled via the Phase 2 redevelopment of PWH, will facilitate the support to major clinical services such as acute in-patient services and ambulatory services. Subject to the population growth in the coming years, enhancement of imaging capabilities such as additional computed tomography (CT), MRI, and positron emission tomography (PET) / CT machines at PWH may be required to cope with the increasing service demand. For AHNH, a designated imaging hub will be required to serve both the hospital and TPH, and to support the Cluster's ACC at AHNH. Besides, enhancement to training facilities, such as endovascular simulation centre, will be required.

EDUCATION, TRAINING AND RESEARCH

Chair

Prof Dennis LO Honorary Chief of Service (Chemical Pathology), PWH /
Chairman & Professor of Chemical Pathology /
Associate Dean (Research), Faculty of Medicine, CUHK

Co-chairs

Prof Paul LAI Cluster Coordinator (Surgery), NTEC /
Honorary Chief of Service (Surgery), SH & PWH /
Professor (Surgery) CUHK

Dr Chi Kong LI Cluster Coordinator (Paediatrics), NTEC /
Coordinator (Clinical Services) /
Consultant (Paediatrics), PWH

The CWG recommends that education, training and research are to be developed in the Cluster hospitals according to their clinical service provision model and clinical excellence. Relevant infrastructure and activities can be arranged as a core at PWH, with satellite units built in the other NTEC hospitals. Overall, NTEC shall foster a culture of inquiry, teaching and innovation throughout the entire network, making it the largest concentration of educators, trainers and researchers in the biomedical field in Hong Kong. It is important that HA colleagues are encouraged and rewarded for achievements in such efforts.

Implementation Enablers

Facilities for Teaching and Training

On the whole, facilities are expected to be designed to catalyse teaching and research, with architectural designs that would convey a statement of NTEC's aspiration as a world-class network for teaching, training, innovation and research. Specifically, it is anticipated that all new facilities are designed with a coherent theme of encouraging interactions and collaboration of its users, so educators, trainers, researchers, trainees and students are able to meet and socialise to maximise interactions for multi-disciplinary fertilisation of ideas.



It is also important to have dedicated facilities for the education, training and research needs of medical, nursing, allied health and pharmacy professionals, trainees and students. The teaching facilities would be integrated or located close to clinical areas. Audio-visual, tele-conferencing and IT facilities (such as CMS stations for teaching and accessing electronic medication-related databases) are recommended. On top of the facility improvement at PWH, clinical teaching facilities can also be developed or enhanced at the other Cluster hospitals.

Support for Simulation Training

Simulation training is a powerful approach for training healthcare professionals and students of various disciplines. It is particularly useful for multi-disciplinary training in teamwork, communication and resource management which are the foundations of everyday clinical care. For example, in simulated crisis situations, participants can be exposed to rare events and conditions which they can practice on without jeopardising patient care. Such experiences help to reduce errors and improve service quality and patient safety.



There is a need for building a state-of-the-art simulation training centre in NTEC, with sufficient physical capacity for training the anticipated number of medical, nursing, allied health and pharmacy students, as well as for the continuous educational activities of healthcare professional staff in the Cluster. Adequate administrative and technical support, including IT, audio-visual and broadcasting, will also be required. Apart from training, the centre may also be used for both undergraduate and postgraduate examinations, thus helping to reduce the pressure on clinical areas.

Research Support

A state-of-the-art research centre is recommended at PWH for housing the majority of clinical, translational and laboratory research. Such a focused design allows researchers from different disciplines to meet each other and to promote collaboration. A minor proportion of research spaces would need to be close to the related clinical areas, to facilitate sample processing and collection of related clinical information.

Facilities that would be particularly important in the future would include genomics and bioinformatics facilities. It is expected that in the longer term, genomic information would be incorporated into routine healthcare, for example cancer mutation profiles and genetic susceptibility of chronic diseases and infectious diseases.

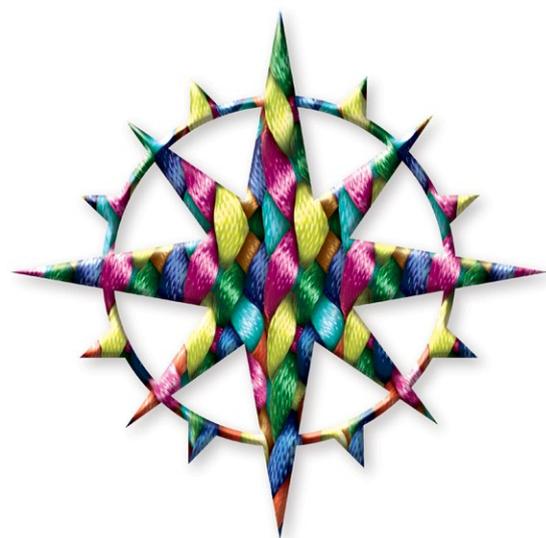
Space and facilities for bio-banking will be important to allow the full research and public health potential of the Cluster's rich clinical resources to be realised. Subject to zoning restrictions, animal facilities to support basic and translational research projects can be considered, and if possible, to be planned and smoothly integrated with the animal facilities at the main campus of CUHK.

Dedicated infrastructure for supporting clinical research, including clinical trials management, ethics committee and data storage, are to be planned and established in the network. It will also be important to develop policies that will facilitate collaboration between HA hospitals and other parties to enhance clinical care, such as collaboration with biomedical engineering partners to develop new types of medical devices.

Library facilities would need to be enhanced to cater for the needs and high volume of researchers, trainers, educators, trainees and students; with adequate space for self-study, Internet-based activities and database searching.

In addition, satellite research facilities at the other Cluster hospitals are to be designed and built, which will reflect the established areas of excellence of the respective hospitals.

Role Delineation



ROLE DELINEATION

This chapter presents the roles of each of the hospitals in NTEC. The delineated roles and profiles showcase how the strategies and service models set out in the earlier chapters will be implemented in the respective hospitals, and support the Cluster's aspiration to develop into an academic health science network.

An Overview of the Role Delineation of Hospitals in NTEC	
PWH	An acute regional hospital and teaching hospital providing services of a comprehensive range of specialties that span secondary to tertiary level; and a hub for the NTEC academic health science network
SH	An extended care hospital providing convalescent, rehabilitation and psychiatric in-patient services to patients transferred from PWH; also offering specialist geriatric care as well as palliative care service in both in-patient and day hospital settings
ANNH	An acute district general hospital providing emergency care and elective services of general specialties to Tai Po District
NDH	An acute district general hospital providing emergency care and elective services of general specialties to North District
TPH	An extended care hospital providing convalescent, rehabilitation and psychiatric in-patient services to patients transferred from ANNH and NDH; also offering specialist service in orthopaedic rehabilitation for the Cluster
SCH	An extended care hospital principally providing infirmary care to chronically ill or severely disabled patients who are unlikely to return to independent living
BBH	An extended care hospital providing in-patient as well as community outreach palliative care services to patients with terminal illness

Prince of Wales Hospital

An acute regional hospital and teaching hospital providing services of a comprehensive range of specialties that span secondary to tertiary level; and a hub for the NTEC academic health science network.

PWH will continue to deliver comprehensive secondary services for the residents of Sha Tin District. These services include the basic elective and emergency services of the various clinical specialties including general medical (for example cardiac, renal and stroke), general surgery, paediatrics, gynaecology, orthopaedics and traumatology, intensive care, pathology, radiology and interventional radiology, and the various allied health disciplines.

PWH will also continue to serve as the tertiary referral centre for NTEC and provide quaternary services in specific specialties such as vascular surgery and cardiothoracic surgery. There are some cluster-based services that will continue to be provided only at PWH. These include obstetrics, oncology (including adult and paediatric), paediatric intensive care, neurosurgery, cardiothoracic surgery, microbiology and haematologico-pathology; although some on-site services such as satellite chemotherapy service and microbiological support will also be made available at NDH as appropriate.



With its current role as a teaching hospital for undergraduate teaching and vocational training for a wide range of medical, nursing, pharmacy and allied health professionals, and the possession of a strong research profile, PWH is in a good position to transform itself into an academic health sciences centre that incorporates clinical practice, teaching, training as well as basic and translational research in health sciences. It will become the hub for the NTEC academic health science network, offering support to the service development of other Cluster hospitals and taking a leading role in enhancing the standard and quality of care delivered at NTEC.

Shatin Hospital

An extended care hospital providing convalescent, rehabilitation and psychiatric in-patient services; also offering specialist geriatric care as well as palliative care service in both in-patient and day hospital settings to patients transferred from PWH.

SH shall retain its current diverse role in providing services of geriatrics, convalescence, surgical rehabilitation, palliative care and mental health. The scope includes in-patient, day hospital and outreach services.

Furthermore, as part of the Cluster's academic health science network, SH shall expand its role in teaching and research.

Alice Ho Miu Ling Nethersole Hospital

An acute district general hospital providing emergency care and elective services of general specialties to Tai Po District.

To deliver appropriate care at the right time and place for patients living in Tai Po District, the service profile of AHNH will be expanded for it to properly function as an acute district general hospital providing 24-hour A&E service, with emergency surgical services supported by other clinical support services, including intensive care, anaesthesia, diagnostic imaging and pathology services. AHNH and TPH are expected to integrate to improve the continuum of care and efficiency in patient flow from acute to convalescent / rehabilitation care for Tai Po residents.

Apart from providing secondary services to the local area, AHNH will also serve as the integrated multi-disciplinary ambulatory care and short-stay centre for the Cluster, providing one-stop service especially for high volume services, with short overnight stay available in the hospital if clinically required. Services to be provided at the centre may include:

- Day surgery: General surgery and urology services
- Diagnostic and interventional radiology
- Musculoskeletal services, such as orthogeriatric fragility fracture clinic, providing one-stop service from acute, rehabilitation to community care
- Cardiac rehabilitation and investigation centre, including phases 2 and 3 rehabilitation, imaging and non-invasive cardiac service
- Integrated pain management
- Endoscopy service with a focus on GI functional testing, GI cancer submucosal dissection, etc.
- Nocturnal home haemodialysis training centre
- Other ongoing services, for example, diabetes centre, day rehabilitation centre, geriatric day hospital, mental health clinics, etc.



AHNH is part of the Cluster's academic health science network, mainly focusing on the undergraduate and vocational training for a range of health professionals in all facets of ambulatory care.

North District Hospital

An acute district general hospital providing emergency care and elective services of general specialties to North District.

To meet the healthcare needs of the North District population, the service profile of NDH will be enhanced for it to serve as a general hospital providing both acute service and convalescent / rehabilitation service within the hospital compound, enabled by a corresponding increase in capacity and relevant facilities. Tertiary and quaternary services, neurosurgery and thoracic surgery for example, will continue to be concentrated at PWH.

On the other hand, NDH shall retain and further enhance its flagship services in breast surgery and foot and ankle surgery. Its radiology unit will continue to provide imaging service for residents of North District, although the radiology service in NTEC will be coordinated by a Cluster Service Director.

In addition, support for NDH's patients could be strengthened through the development of a CHC to enhance community support, health promotion and the management of chronic diseases in partnership with community providers and NGOs.

At the same time, NDH will participate in the undergraduate education and vocational training for a range of health professionals, with undergraduates and vocational trainees rotating through its flagship services. Besides, greater use will be made of its caseload for clinical and health services research, including academic involvement in the management of infectious and communicable diseases. Overall, teaching and research facilities should be an integral part of NDH's future developments.

Tai Po Hospital

An extended care hospital providing convalescent, rehabilitation and psychiatric in-patient services to patients transferred from AHNH and NDH; also offering specialist service in orthopaedic rehabilitation for the Cluster.

The existing role of TPH as an extended care hospital will continue, particularly in its provision of gazette psychiatric ward and orthopaedic rehabilitation service to cater for the whole Cluster.

In addition, TPH shall expand its role in teaching and research as part of the Cluster's academic health science network.

Cheshire Home, Shatin

An extended care hospital principally providing infirmary care to chronically ill or severely disabled patients in NTEC who are unlikely to return to independent living.

The design, facilities, panoramic view and tranquil environment at SCH are ideally suited to long-term convalescent care and infirmary care for patients from the entire Cluster. The original client base of the hospital was patients with long-term physical and intellectual disability.

At the same time, SCH shall participate in teaching and research as part of the NTEC academic health science network.



Bradbury Hospice

An extended care hospital providing in-patient and community outreach palliative care services to patients with terminal illness.

BBH's services, which are currently constrained by capacity and mainly cater for terminally-ill cancer patients, should be expanded to cover end-of-life care for patients with other disorders, such as neurodegenerative disorders. In the short term, growth is likely to be in the community component of the service, as part of the palliative care programme of NTEC.

Moreover, BBH shall take up roles in teaching and research as part of the NTEC academic health science network.

Service Development Priorities



This chapter sets out the recommended service development priorities of the Cluster hospitals in support of their role delineation and the recommended clinical strategies highlighted in the earlier chapters of the CSP. In particular, the short-, medium- and long-term strategies of the three acute hospitals are outlined.

PRINCE OF WALES HOSPITAL

Short-term

- Access block has been the major issue at PWH and must be addressed as a matter of priority. A key strategy is to revamp the admission system of general medicine. This involves the realignment of specialty teams to balance the skill mix, and the streaming of patients to the most appropriate team. Whenever possible the team's beds will be confined to one area, and the workload will be evenly shared by the teams.
- Amongst others, another strategy is to implement the "geriatricians at hospital's front door" model and establish specialist teams in the A&E departments that include geriatricians working in partnership with emergency physicians. The teams will have a range of protocols at their disposal, including ambulatory management of patients, fast-track SOPC referral, specially designed geriatric evaluation wards (such as ACE wards), direct admission of patients to an extended care unit, and discharging patients back home or to RCHes with community support.

- PWH anaesthesiologists were at the forefront of developing the peri-operative model.¹⁴ For it to work, it is crucial for individual surgeons or surgical units to comply with the peri-operative model set out by the CWG on Peri-operative and ICU Services in this CSP.
- PWH should support AHNH in its introduction of emergency surgery services, and such support will involve not just surgeons but also anaesthesiologists and intensivists.
- Develop an acute psychiatric assessment unit with short-stay beds at PWH, which should also be planned in the next phase of PWH redevelopment.

Medium-term

- To further address the access block issue and improve patient care, it is necessary for PWH to enhance its EMW and / or MAPU model, as well as its ambulatory services for both acute and elective cases.
- Integrated clinical programmes are to be developed for maternity, neurosciences, nephrology and urology, GI and hepatobiliary surgery, and cardiothoracic surgery. Under these programmes, the appropriate specialties, both in medical and surgical, are co-located with their in-patient beds, diagnostics, clinics, teaching and research all in one unit and preferably on the same floor.

Long-term

- Paradigm shift in elderly care, including incorporation of elderly friendly wards as well as staff training and development in the care of the elderly patients, which will apply to the whole hospital and not just the staff in the geriatric wards.
- Development of a discrete cancer centre as part of the main hospital with dedicated facilities and other support services.

SHATIN HOSPITAL

- Enhancement of extended care services in support of the convalescent and / or rehabilitation need of the patients, particularly those from PWH.
- Enhancement of SH's geriatric care and community psychiatric services.



¹⁴ Lee A, Kerridge RK, Chui PT, Chiu CH, Gin T. (2011) "Perioperative systems as a quality model of perioperative medicine and surgical care." Health Policy, 102(2-3):214-222.

ALICE HO MIU LING NETHERSOLE HOSPITAL

Short-term

- AHNH shall introduce 24-hour emergency surgical services progressively, from 8-hour, 12-hour to 24-hour service, so as to support its 24-hour A&E department. It is recommended that elective general surgery be put in place at the hospital to support the emergency roster.
- As surgical services cannot expand in isolation, there needs to be a concomitant escalation of supporting services, especially diagnostic imaging, pathology, anaesthesia and ICU services. It would be preferable if such clinical services, especially anaesthesia and ICU, could be aligned with PWH considering that PWH will be the hub of the academic health science network.
- Enhancement of imaging services including CT, and the installation of an MRI scanner at the hospital.
- An elective joint replacement programme is also recommended and may trigger other decisions in relation to clinical support services.

Medium-term

- Integration of management and clinical governance with TPH, particularly with regard to internal medicine, geriatrics, orthopaedics, rehabilitation and the allied health disciplines.
- Enhancement to stroke services is required, and would be implemented through Cluster collaboration.

Long-term

- The amalgamated AHNH and TPH will develop into a multi-disciplinary ACC for the entire Cluster. It will be based on the highest academic standards and will facilitate health services research and clinical service development.

NORTH DISTRICT HOSPITAL

Short-term

- The priority is to enhance multi-disciplinary care and ambulatory services. In particular, ambulatory chemotherapy service will be set up in the hospital as a satellite of PWH's oncology service. The hospital will also introduce geriatric service at its A&E department, establish an orthogeriatric co-care model for managing fragility fracture, and strengthen the support to discharged patients including its COST service and tele-monitoring service. It will also introduce step-down care by phases.
- Fully utilise the current OT capacity.
- In view of its proximity to the border with Mainland China and is likely to be in the frontline in NTEC when dealing with port health issues, such as in managing cross-border infectious disease cases, NDH should build up expertise in the management of infectious and communicable diseases to serve the Cluster.

Medium-term

- Convalescent and rehabilitation services will be the foci for the next stage of development, for both in-patient and ambulatory care.
- Stroke services will progressively become available round-the-clock, as part of the Cluster programme.
- Develop a CHC in North District to improve community care and primary care services in the district, in partnership with community providers and NGOs.



Long-term

- Hepatobiliary surgery will be developed at NDH when population size grows and the service demand reaching a critical mass.
- Paediatric services will, at some stage, need to be reviewed and considered to be developed at NDH based on demographic projections, presumably with a corresponding wind-down of the service on the AHNH campus.

TAI PO HOSPITAL

- Enhancement of extended care services in support of the convalescent and / or rehabilitation need of the patients, particularly those from AHNH and NDH.
- Improvement of the psychiatric wards in terms of design and configurations to provide a friendly and facilitative therapeutic environment for acute and rehabilitative psychiatric care, so as to support patients with different psychiatric conditions.
- The amalgamation of AHNH and TPH will facilitate the development of a multi-disciplinary ACC for the entire Cluster.



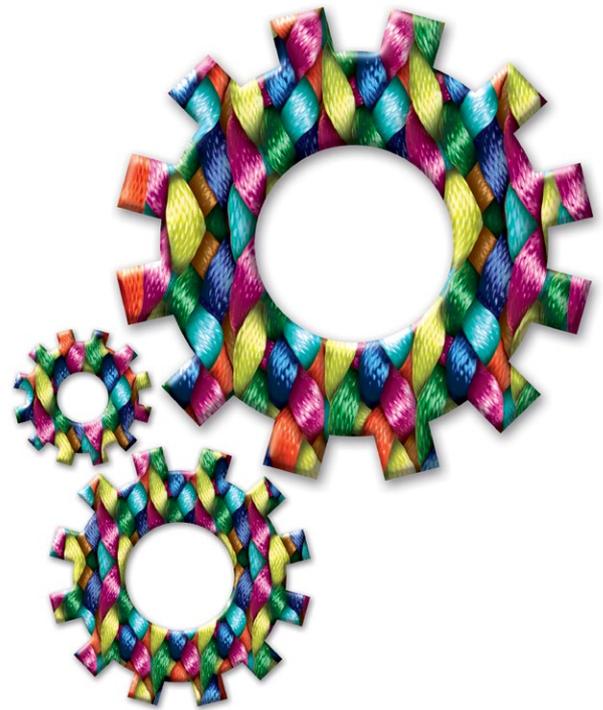
CHESHIRE HOME, SHATIN

- Network with SH and BBH in providing infirmary care.

BRADBURY HOSPICE

- Extension of palliative care services to cover non-cancer patients, such as those with neurodegenerative disorders, particularly in community outreach services.

Implementation Enablers



In facilitating the execution of the recommended role delineation of the hospitals and the clinical strategies highlighted in the strategic framework and individual clinical service programmes, a number of key drivers will be necessary as enablers of change, including workforce planning, IT support, governance structure, business support, and physical design and facilities. It is important to emphasise that for many of the strategies, the changes can and should begin immediately.

Overall, a cluster-based platform should be set up to oversee the implementation of the CSP, while the HA Annual Planning process will be the mechanism to secure the resources required for implementing the strategies.

WORKFORCE PLANNING

Staffing and training are essential to the implementation of the recommended strategies and service development. Although it is beyond the scope of the CSP, robust forward planning on workforce capacity and capability will be crucial considering the necessary lead time in the recruitment and the training of staff to develop the required skills and expertise, as well as in building multi-disciplinary teams with the right skill mix of different specialties and disciplines.

In particular, an increase in manpower is anticipated for the phased re-establishment of emergency surgical services at AHNH to support its 24-hour A&E service. Besides surgical manpower, support is also required from clinical supporting services such as anaesthesia, ICU, radiology and pathology with significant manpower implications.



At the same time, the models of care and strategies set out in the CSP require a new way of working and also present opportunities for various disciplines to take up enhanced roles. For example, for better management of access block, senior nurses can be mobilised as bed and discharge coordinators for acute and convalescent wards, while experienced medical staff of relevant specialties shall provide care in MAPU for intensive rapid assessment and referral to non-acute care.

In view of the substantial projected increase in elderly population in NTEC, central to the provision of patient-centred care is an emphasis on staff training and development in the care of the elderly. This will apply not only to staff in the geriatric wards but to the whole hospital as well, and across the Cluster. Also, geriatricians and emergency physicians will work together to assess and manage older patients at the A&E department so as to reduce avoidable emergency admissions.

Overall, clinical strategies of NTEC that necessitate significant workforce planning as well as training for skill set development include the re-introduction of emergency surgical services and the establishment of an ambulatory care and short-stay centre at AHNH; development of local step-down care at NDH; enhancement of ambulatory care at PWH; and the development of NTEC academic health science network with the involvement of all hospitals in the Cluster. In particular, the required skills, training needs and clinical practice of staff in the Cluster will likely evolve as the integrated clinical programmes like neuroscience services and musculoskeletal services are implemented in the Cluster, together with the parallel development of NTEC into a teaching and research Cluster in partnership with CUHK Faculty of Medicine.

INFORMATION AND COMMUNICATIONS TECHNOLOGY

On the whole, information and communications technology support to the Cluster is essential to facilitate the models of care and also to streamline the services and workflow involved in the clinical service programmes. NTEC hospitals are at the forefront of clinical applications of technology that enable the models of care, for example, the pioneering work at NDH in remote tele-monitoring of COPD patients to enhance their compliance to oxygen and home non-invasive ventilatory support. It is also observed that ongoing work is being developed in partnership with the Hong Kong Polytechnic University to enable remote assessment of and initiation of thrombolytic therapy for stroke patients.

Taking into account the geographical spread of the Cluster, the use of telemedicine should be encouraged and strengthened. Specifically, through telemedicine PWH would be able to provide support to the whole Cluster for the management of acute stroke, trauma and other acute neurological or neurosurgical emergencies. When on-site specialists are not available, tele-consultation can be carried out through video conferencing, tele-radiology, and remote electronic access to patient's health record via mobile devices or workstations at PWH. Tele-monitoring of ill patients at home and in RCHEs, especially those in Tai Po and North districts can also be facilitated by the relevant technology and equipment.



To facilitate the development of cluster-based teams and telemedicine to allow more efficient and versatile use of resources, inter-hospital link will need to be established as part of corporate initiatives so that doctors can have remote access to clinical systems such as the medication order entry and laboratory request systems of other hospitals in the Cluster. Meanwhile, to enhance community support for discharged patients, it is imperative for both the community and hospital teams to be equipped with a common electronic platform to document, share and communicate effectively about the patients' conditions and care plan.

GOVERNANCE STRUCTURE

In general, cluster-based services are encouraged in NTEC to enable optimal service organisation and alignment and to facilitate more efficient and flexible deployment of resources in meeting the immense service demand. The [CWG on Cluster Surgical Services](#) has recommended that the surgical services in the Cluster be run under one management structure, in order to facilitate the re-establishment of emergency surgery at AHNH, and to alleviate the long-standing problem of surgical manpower deficiency, notably in general surgery, neurosurgery and cardiothoracic surgery.

It is recommended that AHNH align with PWH for the necessary clinical supporting services, including anaesthesia, ICU, radiology and pathology, if these services are not cluster-based. That would also mean both clinical alignments and the sharing of COS for AHNH departments should affiliate with PWH rather than NDH. This is recommended in consideration of the immense population growth expected in North District in the coming years, and the leading role of PWH in enhancing the standard and quality of care delivered in NTEC as the hub of the Cluster's academic health science network. The projected growth at NDH services will be more than enough to absorb their capacity and commitment. Since this arrangement is different from the current service organisation, discussions are ongoing with the relevant departments and hospitals, but the Cluster should come to a decision soon to provide appropriate care to patients without excessive inter-hospital transfers.

Moreover, there is a need to review the governance structure of the three ICUs at PWH, AHNH and NDH so as to determine what changes need to be made to achieve the best patient outcomes.

Meanwhile, it is beneficial for AHNH and TPH, which are physically located next to each other and have a high volume of case referrals between them, to be unified in terms of both management governance and clinical governance to facilitate better patient care through the integration of services across the continuum of care.

BUSINESS SUPPORT

Safe and efficient transport service is also a key enabler to the clinical service development. For example, ambulatory oncology services will need to be supported by transport service for cancer patients who require daily treatment to avoid the need for hospitalisation due to travelling problems. Also, discharged patients who need to be transferred to extended care hospitals or RCHEs often require transport assistance. An improvement in the access to transport support such as NEATS or those offered by NGOs (such as Rehabus) will be important to facilitate patients' timely discharge from hospital and access to ambulatory centres.

In terms of other transfer logistics, as PWH will continue to provide 24-hour specialist-led service to support Cluster hospitals for various pathology specialties, considering the travel time incurred in this large Cluster, efficient transfer of pathological samples would be necessary to facilitate prompt investigations and turn-around time for timely diagnosis as well as facilitating early discharge.



PHYSICAL FACILITIES

Physical setup in the hospitals is required for implementing some of the recommendations and for capacity enhancement in line with service needs. While many clinical service programmes can start now without the need to wait for hospital redevelopment, existing capacities that can be utilised should be made available as soon as possible to meet service demands. These include the vacant main OTs at all three acute hospitals, so as to address the surgical demand in the Cluster.



The development potential of NDH has been reserved with an adjacent site that can accommodate a new block for the expansion of the hospital. Two additional floors could also be built on top of the existing main building to support the provision of local step-down services. In addition, a CHC will be developed in North District to enhance community care and primary care services in the district.

At the same time, there is also potential space for future hospital expansion in Tai Po. By making use of the current car park site that is located between AHNH and TPH, the two hospitals could be developed

into a single hospital complex. Besides facilitating patient flow, the physical linkage will also enhance the integration of the two hospitals and support AHNH in becoming the Cluster's multi-disciplinary ambulatory and short-stay centre.

For PWH, the Phase 2 redevelopment will commence to address the community's long-term healthcare needs. Besides, considering that PWH will be the hub of the NTEC academic health science network, the campus environment should be student-friendly and encourage interaction of students, clinicians and researchers across all disciplines. There should be adequate teaching and training facilities for undergraduate and postgraduate teaching, including a sufficiently sized modern simulation centre. The provision of facilities for clinical trial centre, research pharmacy and research management office would also be required for supporting its research function. All new and refurbished areas should make provision for teaching and research spaces.

In order to cater for the clinical, training and research needs of the hospital that are currently dispersed across the vast campus, the capacity of PWH shall be expanded and service efficiency improved through the Phase 2 redevelopment, by incorporating the zonal approach and the "programme floor" concept for hospital design considerations, which will be outlined below.

Zonal Approach

Hospitals are unique institutions that need to be both easily accessible while being able to serve complex functions. It is highly desirable that hospital campuses are oriented in functional zones that are physically discrete and readily identifiable to promote efficiency for staff deployment and movement, as well as facilitate patient and visitor way-finding. Most modern hospitals, especially teaching hospitals, have multiple discrete zones such as for critical care (i.e., for the “hot floors”), in-patient, ambulatory, diagnostic, cancer, university / research, as well as amenities (such as retail, food, meeting point). The zones are specifically designed and located to meet the requirements of users in these services.

Programme Floor

The “programme floor” concept is recommended for integrated clinical programmes in the NTEC, which will be developed for maternity, neurosciences, kidney services, GI and hepatobiliary surgery, and cardiothoracic surgery in the PWH Phase 2 redevelopment. Under these programmes, the appropriate specialties are co-located with their in-patient beds, diagnostics, clinics, teaching and research facilities all in one unit and preferably on the same floor or in close proximity.

Allied health support shall be devolved to the “programme floors” with the appropriate treatment facilities and spaces. Furthermore, in line with the concept of programme-based rehabilitation whereby some clinical programmes, musculoskeletal services in particular, seek to start acute rehabilitation as soon as the patient is stabilised, and step-down or rehabilitation beds are likely to be part of the “programme floors” in acute hospitals.

Meanwhile, for cancer services at PWH an “institutional model” will be adopted, which means that a full range of clinical services will be grouped together at an integrated wing or a series of floors, including all the cancer diagnostic and treatment modalities and dedicated imaging and pathology support. A physical identity supported by a dedicated entrance is desirable.

Design Implications

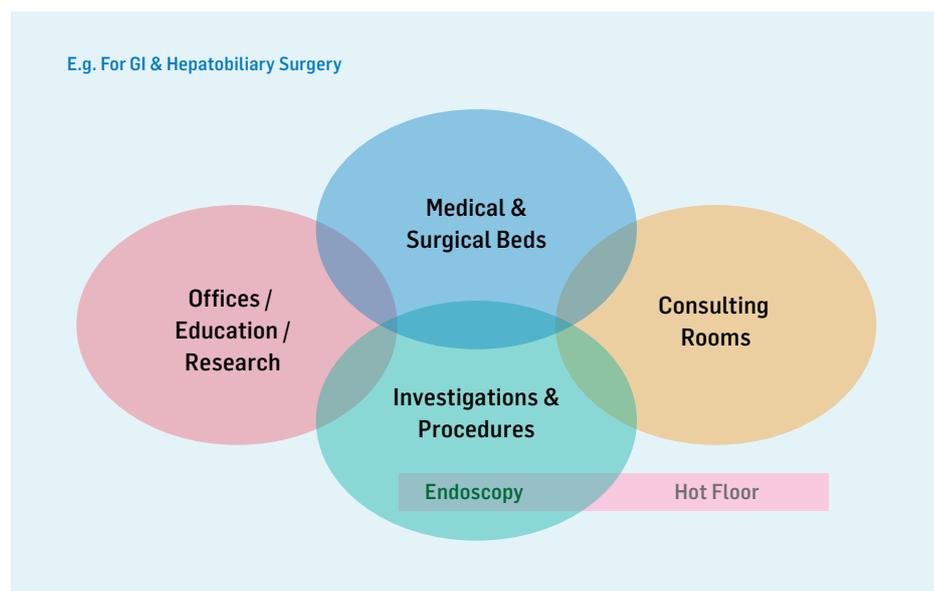
Both the zonal approach and programme floor concept can be applied to acute hospitals. As a start in NTEC, the recommendations in particular will be adopted for the planning of the PWH Phase 2 redevelopment. The concept of “programme floor” shall be facilitated by large floor plates and flexible design.

Large Floor Plates

In terms of physical layouts, imaging and core pathology services should be positioned to best serve multiple zones, particularly critical care, ambulatory and in-patient zones. For some zones, dedicated imaging facilities will be required including CT in the A&E department; CT and MRI in hybrid theatres; and CT or PET / CT in the cancer centre. The design of diagnostic facilities will need to allow for the ease of and rapid upgrade and replacement of technology.

Time critical, 24-hour intervention services shall be grouped on “hot floors”. They include the A&E department, ICU / HDUs, OTs, and MAPU. They should have immediate access to dedicated diagnostic facilities, particularly imaging modalities such as CT. Other supporting services should be immediately adjacent including endoscopy, cardiac catheterisation labs, stroke unit, and trauma / neurosurgery facilities. For example, in the PWH Phase 2 redevelopment, the GI and hepatobiliary surgery “programme floor” will include endoscopy service and locate in close proximity to the “hot floors” of the hospital, as illustrated in the diagram below.

Functional elements of a programme floor



Another example is the “programme floor” for maternity services at PWH, where antenatal care, labour wards, post-natal services and neonatology are located on the same floor, and also catering for HDU settings for high-risk pregnancies in close proximity.

Flexible Spaces and Environment

Bed capacity is the traditional measure of hospital capacity and capability. In the future, bed availability may need to flex up and down depending on season and the background rate of infectious and communicable disease. This flexibility would also allow the scheduling of teaching and examination programmes. In addition, ambulatory care spaces will need to have maximum flexibility to move between consulting and multi-disciplinary modes. In this regard, technology can assist in the rapid configuration and ambience of clinical spaces.

Overall, the redevelopment / expansion of any of the three acute hospitals in NTEC demands an iconic building that will demand the respect of the community and inspire the men and women who work in it. In keeping with the academic health science network concept, design should not only provide for but mandate professional and social interaction. The environment of the future hospital campus, for example the redeveloped PWH after Phase 2 redevelopment, should be conducive to health and healing, which shall be facilitated by natural light, greenery and views, among other considerations.

PATIENT-CENTRED DESIGN CONSIDERATIONS

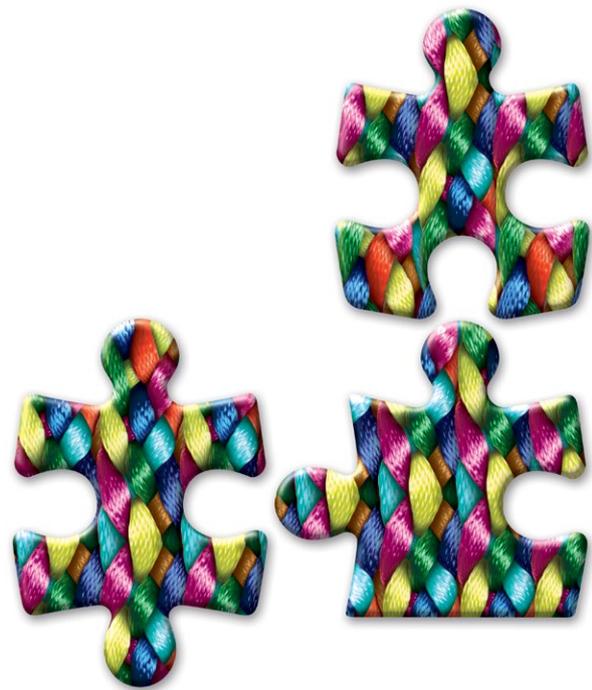
On the whole, there are other design elements that can improve the experience of patients and their families in the hospitals and contribute to their sense of well-being. It requires a conscious effort to design from the perspectives of the patients, families and carers and taking into account what would add to their convenience and comfort without compromising clinical and operational efficiency and safety.

For instance, the concept of intuitive way-finding that can support user-friendly navigation for patients and visitors in addition to staff members is an important component in the design of internal circulation in the hospital. The spatial arrangement and capacity of the internal movement system, particularly lifts, should also facilitate efficient flow, including taking into consideration waiting areas for lift passengers particularly those in wheelchair. In addition to design requirements that allow barrier-free access for the disabled, age-friendly design is also an important consideration to cater for the growing number of elderly patients. Besides, it will be more convenient to position specific services that are frequented by the disabled or an elderly patient, such as a day rehabilitation centre, closer to the entrances and exits.

With the growing reliance on IT in modern society, installations that will enable patients to use their smart phones or other mobile devices in hospitals, without interference to sensitive medical equipment, would be beneficial to patients and their families. This includes Internet access particularly through Wi-Fi, which will facilitate them in using HA mobile application such as "TouchMed" (e藥通) that shows the queue numbers at different pharmacies and notifies the patients when their medicine is ready for collection. Wi-Fi access will also help in-patients to communicate with their loved ones and friends. In relation, considerations could be given to install power outlets for patients in the ward to re-charge their smart phones and other mobile devices.



Capacity Planning



Alongside the formulation of the clinical strategies, information was also compiled on the projected capacity requirements of the Cluster, so as to facilitate the alignment and planning of services and facilities in the future. The focus was on the acute, extended and psychiatric care beds required to be provided in the Cluster for the next two decades up to 2031, with 2010 as the base year. This was based on an overall HA-wide demand projection exercise, using demand modelling techniques.

The HA-wide demand projection took into account population growth, demographic changes and age-gender-specialty-specific service utilisation trends. It was conducted in close collaboration with clinicians from different clinical specialty committees, cluster management teams, and the Census and Statistics Department (C&SD) of the Government.

The following sections briefly outline the planning parameters and methodology for the demand projection.

DATA SOURCES

Projections were based on data from the following four main data sources:

- Service utilisation data from 2004 to 2010 were extracted from the HA Clinical Data Repository, which included the Integrated Patient Administration System and the Obstetrics Clinical Information System for newborn delivery data;
- Local birth statistics in 2010 and 2011, and birth projection figures from 2012 to 2031, which were obtained from C&SD;
- Population projection figures from the C&SD and district-based population projections from the Planning Department of the Government, from 2012 to 2031; and
- Cross-border eligible persons (EPs) were quantified in consultation with the C&SD.

PLANNING PARAMETERS

All parameters for the projections were age-gender-specialty-specific and comprised a combination of the following age, gender and specialty groups:

- For acute care, 10 age groups of 0-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-59, 60-64, 65-69, 70+ years, with 18 specialty groups (anaesthesiology, cardiothoracic surgery, dental, ENT, emergency medicine, gynaecology, hospice, ICU / HDU, medicine, neonatology, neurosurgery, obstetrics, oncology, ophthalmology, orthopaedics, paediatrics, surgery and other / unclassified specialty);
- Age-specific rates per female population for obstetrics and gynaecology specialties;
- For neonatology, including NICU and special care baby unit (SCBU), the planning parameters were devised from birth data;
- For extended care, including convalescent / rehabilitation care and local infirmary service, the ratio of acute to extended care bed days occupied per linked episode was considered; and
- For psychiatric care, the planning parameters involved 16 age- and disease-specific diagnosis groups.

PROJECTION METHODOLOGY

For the projected bed requirement for each clinical specialty, other than obstetrics, neonatology and psychiatry, the volume and mix of expected service demand from residents in each district was first computed taking into account the projected age-gender-specialty-specific hospital service utilisation rates and average length of stay (ALOS), as well as population growth and ageing over the period to 2031.

The hospital patronage pattern across districts was also computed, using base-year data on specialty-specific cross-cluster patient flow. The demand for NTEC acute bed days was derived by applying the assumed hospital patronage pattern specifically for NTEC, i.e., the proportion of residents residing in each district throughout Hong Kong who would use NTEC services.

In addition, since significant growth in the number of cross-border EPs were observed in the past years, the demand from cross-border EPs was also incorporated into the projection. In this regard, it was estimated that the utilisation by cross-border EPs in 2010 was around 5% and 1% of HA's total patient days for in-patient hospital services in paediatrics specialty and other specialties respectively. Among EPs who have registered using a Mainland China address, i.e., cross-border EPs, a major proportion of them were managed in NTEC.

For obstetric services, bed demand was derived from the projected number of births in Hong Kong, including births to local and Mainland mothers. The territory-wide local birth projection figures were distributed across districts, based on the districts' projected female population aged 15 to 49 years, together with the district-age-specific fertility rates. For projected births to local mothers at district level and Mainland mothers at territory-wide level, the respective public hospital share and hospital patronage patterns among the eight HA obstetric units at base year were then applied to derive the projected obstetric bed requirement for NTEC.

With regard to neonatology, the projected births at PWH formed the basis for estimating the SCBU and NICU service demand, with the use of respective utilisation rates. Referrals of infants born in other HA hospitals were also considered. At the same time the demand for SCBU and NICU from outborns (i.e., infants born in non-HA hospitals) was based on the respective utilisation rates, the total projected births at private hospitals, as well as the relative distribution of outborn admissions among PWH and the other SCBU and NICU in HA.

For extended care beds, the projected requirement for NTEC was computed based on the projected acute bed days for NTEC and the HA-wide age-gender-specialty ratio of acute to extended care bed days occupied per linked episode.

For psychiatric care beds, a similar demand modelling technique was used. The projection model took into account population growth and ageing with consideration of cross-border EPs, age- and disease-specific service utilisation rates (comprising 16 diagnosis groups as in Table 1), and anticipated impact with the expansion of community services, as a result of shifting from in-patient care.

Table 1. Age- and disease-specific psychiatric diagnosis groups used in the psychiatry service demand projection model

Age group (years)	Diagnosis group
<18	<ul style="list-style-type: none"> • Psychosis (F20-29) • Disorders of psychological development / Mental retardation (F80-89, F70-79) • Affective disorders (F30-39) • Disruptive behavioral disorders (F90-92) • Emotional disorders (F93-94, F40-48) • Others
18-64	<ul style="list-style-type: none"> • Schizophrenia (F20-29) • Affective disorders (F30-39) • Neurotic, stress-related and somatoform disorders (F40-48) • Mental and behavioral disorders due to psychoactive substance use (F10-19) • Others
≥ 65	<ul style="list-style-type: none"> • Dementia (F00-03, G30) • Schizophrenia (F20-29) • Affective disorders (F30-39) • Neurotic, stress-related and somatoform disorders (F40-48) • Others

Diagnosis groups based on consultation with representative psychiatrists in Hong Kong, and WHO ICD-10 codes.

The projection framework for psychiatric care was developed on a headcount basis using 2010 as the base year. Based on the average utilisation rate from 2008 to 2010, the model was applied to project the service demand for the 16 diagnosis groups. The projected headcounts were then applied to the age-disease-specific ALOS data at base year to obtain the projected bed days up to 2031.

Similar to other acute care specialties, the hospital patronage pattern was computed using the base-year data on cross-district hospital flow for bed days, as well as the projected population at district level. The demand for psychiatric care beds in NTEC was derived by applying the pattern specifically for AHNH, TPH and SH where in-patient psychiatric beds were provided.

CASEMIX ADJUSTMENT

To take into account the different specialty service network arrangements in HA and variations in the specialty-specific casemix profile among clusters, casemix data from 2009 to 2011 was used to identify variations in the complexity of acute in-patient services across the clusters.

Given that length of stay (LOS) increases with case complexity, for every hospital and age-gender-specialty sub-group, an anticipated LOS was computed based on the actual number of episodes of each Diagnosis Related Group and the corresponding HA-wide ALOS. Results from this analysis on the complexity of acute in-patient services delivered among the different specialties of HA hospitals were subsequently factored into the projection.

ASSUMPTIONS FOR BED PROJECTION

The projection methodology described above provided a base-case scenario to demonstrate the nature and volume of in-patient activities to be expected for NTEC in 2031, assuming the market share of HA as well as the patient volume and mix, referral patterns and policy remain the same over the projection horizon for the Cluster.

The projection covered both in-patient and day-patient bed days. The projected bed days for acute care beds were translated into the number of in-patient acute beds required for each specialty by assuming an 80%-90% occupancy rate, depending on the proportion of emergency caseload. For instance, for ICU / HDU, NICU and obstetrics, a lower occupancy rate of 80% was assumed since these departments generally admit patients on an urgent but random basis, hence greater flexibility should be allowed for. As for day beds under acute care and in-patient beds for extended care services, 120% and 90% occupancy rates were assumed respectively.

For psychiatric care, clinical views from the Coordinating Committee in Psychiatry were sought. Their views on expanding community-based care, by assuming an increase in the coverage of community care for patients in the age group of 18-64 years diagnosed with Schizophrenia (F20-29) and Affective disorders (F30-39), were factored into the projection model. By assuming an 85% occupancy rate, the projected bed days were translated into the number of in-patient beds required.

PROJECTED BED REQUIREMENT

The projected bed requirement for NTEC in 2031 are summarised in Table 2. According to the demand projection, it was estimated that the Cluster would need to provide around 5,600 acute and extended care beds, and also 570 beds for psychiatric care.

Table 2. Projected bed requirement for NTEC in 2031

Care category	Projected bed requirement for NTEC in 2031
Acute care ⁽¹⁾	4,100
Extended care ⁽²⁾	1,500
Psychiatric care	570
Total ⁽³⁾	6,170

Notes:

1. Excludes A&E observation beds (16 beds as at March 2014) and beds under nursery specialty (88 beds as at March 2014).
2. Includes beds for convalescent / rehabilitation and infirmary care, but excludes beds for Central Infirmary Waiting List placement.
3. Sum of individual figures may not equal to the total due to rounding.

Conclusion



CONCLUDING REMARKS

The NTEC CSP maps out the Cluster's clinical strategies and future service directions for meeting the long-term healthcare needs of the community. The strategies and recommendations reflect the concerted efforts and collective wisdom of the NTEC staff in their commitment to optimise and transform the way that services are organised in the Cluster. It will help in managing the rising service demand and ensuring more efficient delivery of services, while keeping NTEC at the forefront of international developments in both health services and health sciences for the coming decades.

The drive toward developing ambulatory care as well as the development of multi-disciplinary co-care of patients in combined clinical programmes will be an important service development in NTEC, ensuring that patients are cared for in a setting that is best suited for their needs. Besides strengthening cross-hospital collaboration, the development of cluster-based services is also encouraged for optimal alignment of service and standards, and more efficient and flexible deployment of manpower and facilities in meeting the immense service demand faced by the Cluster.

In addition to providing acute hospital services for the district residents, PWH will remain as the regional hospital and tertiary referral centre in the Cluster, particularly for centralised services such as neurosurgery, cardiothoracic surgery and major trauma. It is also recommended for PWH to support the development of services in other Cluster hospitals, such as the progressive re-establishment of emergency surgical services at AHNH, which will enable it to better carry out its role as an acute hospital providing 24-hour A&E service and also help reduce inter-hospital transfers.

Meanwhile, the service profiles of AHNH and NDH will be enhanced for them to better serve as the acute district general hospitals for their districts. They shall also ride on existing strengths and develop flagship services of their own. AHNH will be developed into NTEC's integrated multi-disciplinary ambulatory care and short-stay centre, providing one-stop clinical care for high-volume ambulatory services, including chronic pain management programmes. NDH is anticipated to further strengthen its breast surgery and foot and ankle surgery, and build up expertise in the management of infectious and communicable diseases to serve the Cluster. In the future, NDH will develop convalescent and rehabilitation services to support patients, while a CHC will also be developed in North District to provide general out-patient and community care services.

For the four extended care hospitals in NTEC, they will continue to serve essential roles which will be strengthened. TPH and SH will continue to serve as the extended care hospitals in the Cluster, providing convalescent, rehabilitation and psychiatric in-patient services. Specifically, TPH will continue to offer specialist service in orthopaedic rehabilitation for the Cluster, while SH in specialist geriatric care as well as palliative care. SCH, on the other hand, shall network with SH and BBH and continue to provide infirmary care to chronically ill or severely disabled patients in the Cluster who are unlikely to return to independent living. Likewise, BBH will continue to provide in-patient and community outreach palliative care services to patients with terminal illness.

With the development of NTEC into an academic health science network, partnership with the CUHK Faculty of Medicine and other tertiary institutions will continue and deepen. All the hospitals in the Cluster will participate in and strengthen their role in teaching and research as part of the academic health science network, with PWH serving as the hub, offering support to the service development of other Cluster hospitals and taking a leading role in enhancing the standard and quality of care delivered in NTEC.

WAY FORWARD

For many of the clinical strategies outlined in the CSP, the changes can and should begin now. This is especially the case for those involving the re-engineering of workflow and clinical pathways, particularly in tackling access block issues. These include the streamlining of medical admission workflow and the mobilisation of nurses as bed and discharge coordinators in acute and convalescent wards. At the same time, robust planning on implementation enablers like workforce, IT and business support should also commence. The required resources shall be sought through the HA Annual Planning process.



Many CWGs have proposed setting up inter-departmental task force or work groups to streamline their respective clinical service programmes and oversee the development of standard protocols. In particular, ongoing discussions will be necessary to come to a consensus on the organisation of intensive care, peri-operative services and radiology within the Cluster, which are of particular importance for supporting the re-establishment of emergency surgical services at AHNH. In addition, deliberations are also required to work out the details in integrating the governance of AHNH and TPH.

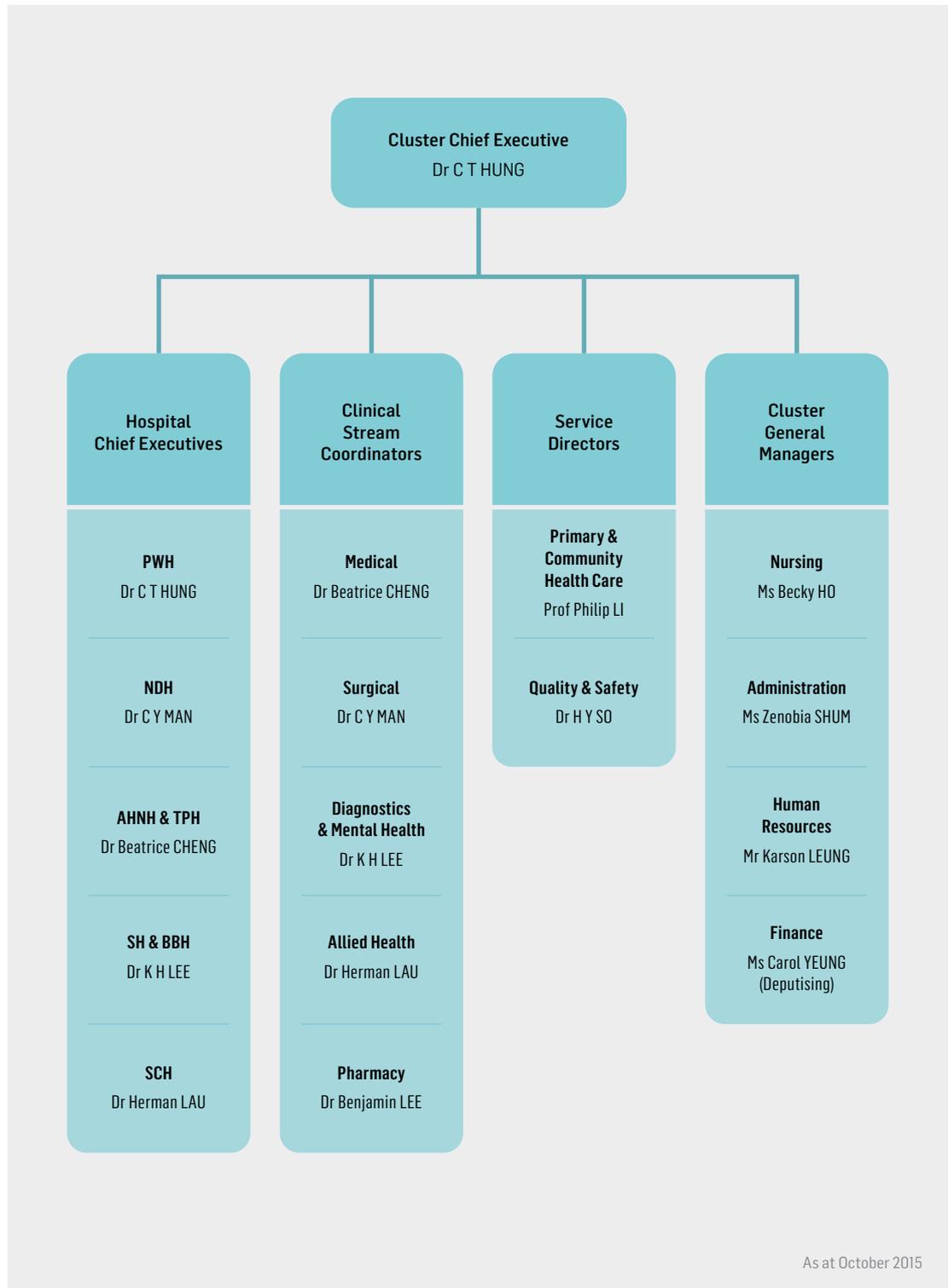
A cluster-based committee involving the Cluster Chief Executive and senior staff of the Cluster should be set up to oversee the implementation of the CSP. This includes promulgation to staff and stakeholders, as well as executing and monitoring the implementation of the recommended strategies and service models. With the planning of major capital works in NTEC currently underway, especially the Phase 2 redevelopment of PWH, there is also a need to ensure that the capital planning and physical design is in line with and in support of the recommendations in the CSP.

Ultimately, engagement and dedication of the staff within the Cluster are keys to success in implementing the CSP. With new perspectives generated through the formulation of the CSP, a momentum for change has been built up among staff. As planners and custodians of the clinical strategies, their professionalism, commitment and enthusiasm will help turn the strategies into reality.

Abbreviations

A&E	Accident and Emergency	GOPC	General Out-patient Clinic
ACC	Ambulatory Care Centre	HA	Hospital Authority
ACE	Acute Care for the Elderly	HAHO	Hospital Authority Head Office
AHNH	Alice Ho Miu Ling Nethersole Hospital	HDU	High Dependency Unit
BBH	Bradbury Hospice	ICU	Intensive Care Unit
CDRC	Community Day Rehabilitation Centre	ICDS	Integrated Care and Discharge Support for Elderly Patients
CGAT	Community Geriatric Assessment Team	IT	Information Technology
CHC	Community Health Centre	MAPU	Medical Assessment and Planning Unit
CMS	Clinical Management System	MRI	Magnetic Resonance Imaging
CNS	Community Nursing Services	NDH	North District Hospital
COPD	Chronic Obstructive Pulmonary Disease	NEATS	Non-emergency Ambulance Transfer Service
COS	Chiefs of Service	NGO	Non-governmental Organisation
COST	Community Outreach Services Team	NTEC	New Territories East Cluster
CSP	Clinical Services Plan	PET	Positron Emission Tomography
CT	Computed Tomography	OT	Operating Theatre
CUHK	The Chinese University of Hong Kong	PWH	Prince of Wales Hospital
CWG	Clinical Work Group	RCHE	Residential Care Home for the Elderly
EMW	Emergency Medicine Ward	SCH	Cheshire Home, Shatin
ENT	Ear, Nose and Throat	SH	Shatin Hospital
FM	Family Medicine	SOPC	Specialist Out-patient Clinic
FMC	Family Medicine Clinics	TPH	Tai Po Hospital
GDH	Geriatric Day Hospital		
GI	Gastrointestinal		

Appendix 1: Current Organisational Structure



Appendix 2: Summary of Current Services

PRINCE OF WALES HOSPITAL

Clinical Specialties

- Accident & Emergency
- Anaesthesia & Intensive Care
- Anatomical & Cellular Pathology
- Chemical Pathology
- Clinical Oncology
- Ear, Nose & Throat
- Endoscopy
- Family Medicine
- Imaging & Interventional Radiology
- Medicine & Therapeutics
- Microbiology
- Obstetrics & Gynaecology
- Ophthalmology & Visual Sciences
- Oral Maxillofacial Surgery & Dental Unit
- Orthopaedics & Traumatology
- Paediatrics
- Psychiatry
- Surgery (including Cardiothoracic Surgery & Neurosurgery)

Allied Health & Other Services

- Audiology
- Clinical Psychology
- Dietetics
- Medical Social Services
- Occupational Therapy
- Physiotherapy
- Podiatry
- Prosthetics & Orthotics
- Speech Therapy
- Spiritual Care Service (Catholic Pastoral Care, Christian Chaplaincy & Buddhist Chaplaincy)
- Volunteer Services

SHATIN HOSPITAL

Clinical Specialties

- Hospice & Palliative Care
- Medicine & Geriatrics
- Psychiatry
- Radiology
- Surgery

Allied Health & Other Services

- Clinical Psychology
- Dietetics
- Medical Social Services
- Occupational Therapy
- Pharmacy
- Physiotherapy
- Sleep Assessment Unit
- Speech Therapy
- Spiritual Care Service (Catholic Pastoral Care, Christian Chaplaincy & Buddhist Chaplaincy)
- Volunteer Services

CHESHIRE HOME, SHATIN

Clinical Specialties

- Infirmary
- Rehabilitation
- X-ray

Allied Health & Other Services

- Clinical Psychology
- Dietetics
- Medical Social Services
- Occupational Therapy
- Physiotherapy
- Speech Therapy
- Spiritual Care Service (Catholic Pastoral Care, Christian Chaplaincy & Buddhist Chaplaincy)
- Volunteer Services

BRADBURY HOSPICE

Clinical Specialties

- Day Hospice
- Hospice Home Care
- Hospice In-patient Care
- Hospital Consultation Liaison Service

Allied Health & Other Services

- Bereavement Support
- Medical Social Services
- Psychological Counseling
- Spiritual Care Service (Catholic Pastoral Care, Christian Chaplaincy & Buddhist Chaplaincy)
- Volunteer Services

ALICE HO MIU LING NETHERSOLE HOSPITAL

Clinical Specialties

- Accident & Emergency
- Anaesthesiology
- Diagnostic Radiology
- Ear, Nose & Throat
- Emergency Medicine
- Family Medicine & General Out-patient Services
- Internal Medicine
- Ophthalmology
- Orthopaedics & Traumatology
- Paediatrics & Adolescent Medicine
- Pathology
- Psychiatry
- Surgery

Allied Health & Other Services

- Audiology
- Clinical Psychology
- Dietetics
- Medical Social Services
- Occupational Therapy
- Optometry & Orthoptics
- Pharmacy
- Physiotherapy
- Podiatry
- Prosthetics & Orthotics
- Speech Therapy
- Spiritual Care Service (Catholic Pastoral Care & Christian Chaplaincy)
- Volunteer Services

TAI PO HOSPITAL

Clinical Specialties

- Diagnostic Radiology
- Medicine & Geriatrics (including Convalescent, Rehabilitation & Infirmity)
- Orthopaedics (including Convalescent & Rehabilitation)
- Psychiatry (including Involuntary & Acute Adult Psychiatry)

Allied Health & Other Services

- Clinical Psychology
- Dietetics
- Medical Social Services
- Occupational Therapy
- Pharmacy
- Physiotherapy
- Prosthetics & Orthotics
- Speech Therapy
- Spiritual Care Service (Catholic Pastoral Care & Christian Chaplaincy)
- Volunteer Services

NORTH DISTRICT HOSPITAL

Clinical Specialties

- Accident & Emergency
- Anaesthesiology
- Community Outreach Services
- Day Rehabilitation Centre
- Gynaecology (Day-patient & Out-patient Services only)
- Infection Control
- Intensive Care
- Medicine
- Neurosurgery
- Oral-Maxillofacial Surgery & Dental Unit
- Orthopaedics & Traumatology
- Paediatrics & Adolescent Medicine (Out-patient Services only)
- Pathology & Clinical Biochemistry
- Psychiatry (Day-patient, Community Outreach & Out-patient Services only)
- Radiology
- Surgery (including Breast Surgery)

Allied Health & Other Services

- Clinical Psychology
- Dietetics
- Medical Social Services
- Occupational Therapy
- Pharmacy
- Physiotherapy
- Podiatry
- Prosthetics & Orthotics
- Speech Therapy
- Spiritual Care Service (Catholic Pastoral Care & Christian Chaplaincy)
- Volunteer Services

Appendix 3: Project Structure & Governance

NTEC CSP PROJECT COMMITTEE

Terms of Reference

- To plan, guide, and steer the development of the NTEC CSP.
- To analyse, scrutinise and advise on the principles, assumptions, models of care, capacity planning and key recommendations proposed in the development of the CSP.
- To receive the report generated by the external consultant and produce a final CSP for consideration by members of the Directors' Meeting and Medical Services Development Committee.

Membership

Co-chairs

Dr C T HUNG	Cluster Chief Executive, NTEC / Hospital Chief Executive, PWH
Dr S V LO	Director (Strategy & Planning), HAHO

Members

Ms Winnie NG	Chairperson, PWH Hospital Governing Committee
Rev Thomas SOO	Chairperson, AHNH Hospital Governing Committee
Ms Lai Yuen CHIANG	Chairperson, NDH Hospital Governing Committee
Prof Francis CHAN	Dean, Faculty of Medicine / Professor (Medicine & Therapeutics), CUHK
Prof Philip LI	Service Director (Primary & Community Health Care), NTEC / Deputy Hospital Chief Executive / Chief of Nephrology / Honorary Professor (Medicine & Therapeutics), PWH
Dr Beatrice CHENG	Clinical Stream Coordinator (Medical Stream), NTEC / Hospital Chief Executive, AHNH & TPH
Dr Chi Yin MAN	Clinical Stream Coordinator (Surgical Stream), NTEC / Hospital Chief Executive, NDH
Dr Herman LAU	Clinical Stream Coordinator (Allied Health Services), NTEC / Hospital Chief Executive, SCH
Dr Koon Hung LEE	Clinical Stream Coordinator (Diagnostics & Mental Health), NTEC / Hospital Chief Executive, SH & BBH
Dr Francis CHOW	Cluster Coordinator (Medicine), NTEC / Chief of Service (Medicine & Therapeutics), PWH
Prof Paul LAI	Cluster Coordinator (Surgery), NTEC / Honorary Chief of Service (Surgery), SH & PWH / Professor (Surgery), CUHK

Dr Chi Kong LI	Cluster Coordinator (Paediatrics), NTEC / Coordinator (Clinical Services) / Consultant (Paediatrics), PWH
Ms Becky HO	Cluster General Manager (Nursing), NTEC / General Manager (Nursing), PWH
Ms Zenobia SHUM	Cluster General Manager (Administrative Services), NTEC / General Manager (Administrative Services), PWH
Dr Libby LEE	Chief Manager (Strategy, Service Planning & Knowledge Management), HAHO
Mr Donald LI	Chief Manager (Capital Planning), HAHO
Ms Eva TSUI	Chief Manager (Statistics & Workforce Planning), HAHO
Ms Looi Looi LOW	Senior Manager (Strategy & Service Planning), HAHO
Dr Kenneth TSANG	Senior Manager (Strategy & Service Planning), HAHO <i>(up to January 2015)</i>
Dr Leo WAT	Senior Manager (Strategy & Service Planning), HAHO <i>(from February 2015)</i>

Secretary

Ms Pauline CHAN	Senior Manager (Administration), PWH
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NTEC CSP ADVISORY PANEL

Terms of Reference

- To review, comment and provide advice to the Project Committee in the development of the NTEC CSP.
- To review and provide expert comment and feedback to the Project Committee on the key observations and recommendations proposed by the external consultancy on the NTEC CSP.

Membership

Co-convenors

Dr C T HUNG	Cluster Chief Executive, NTEC / Hospital Chief Executive, PWH
Dr S V LO	Director (Strategy & Planning), HAHO

Members

Prof Joseph SUNG	Vice-Chancellor, CUHK
Prof C S LAU	Vice-President, Hong Kong Academy of Medicine
Dr Pamela LEUNG	Former Cluster Chief Executive, Hong Kong East Cluster
Dr K P LEUNG	Patient Representative
Ms Jane LIU	Chief Manager (Nursing) / Chief Nurse Executive, HAHO
Dr Libby LEE	Chief Manager (Strategy, Service Planning & Knowledge Management), HAHO

NTEC CSP PLANNING TEAM

NTEC

Dr C T HUNG (Advisor)	Cluster Chief Executive, NTEC / Hospital Chief Executive, PWH
Prof Philip LI (Chair)	Service Director (Primary & Community Health Care), NTEC / Deputy Hospital Chief Executive / Chief of Nephrology / Honorary Professor (Medicine & Therapeutics), PWH
Dr Beatrice CHENG (Co-chair)	Clinical Stream Coordinator (Medical Stream), NTEC / Hospital Chief Executive, AHNH & TPH
Dr Chi Yin MAN (Co-chair)	Clinical Stream Coordinator (Surgical Stream), NTEC / Hospital Chief Executive, NDH
Ms Becky HO	Cluster General Manager (Nursing), NTEC / General Manager (Nursing), PWH
Prof Anthony CHAN	Cluster Coordinator (Oncology), NTEC / Honorary Chief of Service (Clinical Oncology), PWH / Chairman & Professor (Clinical Oncology) / Associate Dean (External Affairs), Faculty of Medicine, CUHK
Prof Tony CHUNG	Cluster Coordinator (Obstetrics & Gynaecology), NTEC / Professor (Obstetrics & Gynaecology) / Associate Dean (General Affairs), Faculty of Medicine, CUHK
Prof Paul LAI	Cluster Coordinator (Surgery), NTEC / Honorary Chief of Service (Surgery), SH & PWH / Professor (Surgery), CUHK
Ms Pauline CHAN	Senior Manager (Administration), PWH
Mr Aven LEE	Senior Manager (Hospital Planning & Facility Management), NTEC
Ms Claudia TSANG	Manager (Administration), NTEC

HAHO

Dr Libby LEE	Chief Manager (Strategy, Service Planning & Knowledge Management), HAHO
Ms Looi Looi LOW	Senior Manager (Strategy & Service Planning), HAHO
Dr Kenneth TSANG	Senior Manager (Strategy & Service Planning), HAHO <i>(up to January 2015)</i>
Dr Leo WAT	Senior Manager (Strategy & Service Planning), HAHO <i>(from February 2015)</i>
Mr Raymond LI	Manager (Strategy & Service Planning), HAHO
Ms Inez WU	Manager (Strategy & Service Planning), HAHO
Ms Siobhon CHENG	Executive Officer (Strategy & Service Planning), HAHO <i>(up to October 2014)</i>
Ms Ellen WU	Executive Assistant (Strategy & Service Planning), HAHO

External Consultant to the Planning Team

Dr Peter BRENNAN	Director, MA International Pty Ltd, Australia
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NTEC CSP CHIEF OF SERVICE WORKGROUP

Terms of Reference

- To provide comment and advice to the Planning Team on vertical specialty-based consultation.
- To provide advice to the Planning Team on horizontal work groups' themes, chairmanship and composition.
- To provide advice to the Planning Team on the theme, framework and content of the NTEC CSP.

Membership

Convenors

Prof Philip LI	Service Director (Primary & Community Health Care), NTEC / Deputy Hospital Chief Executive / Chief of Nephrology / Honorary Professor (Medicine & Therapeutics), PWH
Dr Beatrice CHENG	Clinical Stream Coordinator (Medical Stream), NTEC / Hospital Chief Executive, AHNH & TPH
Dr Chi Yin MAN	Clinical Stream Coordinator (Surgical Stream), NTEC / Hospital Chief Executive, NDH

Members

Prof Anil AHUJA	Honorary Chief of Service (Imaging & Interventional Radiology), PWH <i>(up to October 2014)</i>
Prof Anthony CHAN	Cluster Coordinator (Oncology), NTEC / Honorary Chief of Service (Clinical Oncology), PWH / Chairman & Professor (Clinical Oncology) / Associate Dean (External Affairs), Faculty of Medicine, CUHK
Dr Jimmy CHAN	Cluster Coordinator (Accident & Emergency), NTEC / Coordinator (Clinical Services), AHNH & TPH / Chief of Service (Accident & Emergency), AHNH
Dr Phoon Ping CHEN	Director (Simulation Training Centre), NTEC / Chief of Service (Anaesthesia), NDH & AHNH
Dr Yuk Lun CHENG	Chief of Service (Medicine) / (Intensive Care Unit), AHNH
Dr Nai Kwong CHEUNG	Coordinator (Clinical Services) / Chief of Service (Accident & Emergency), PWH
Dr Tak Hong CHEUNG	Chief of Service (Obstetrics & Gynaecology), NTEC
Dr Francis CHOW	Cluster Coordinator (Medicine), NTEC / Chief of Service (Medicine & Therapeutics), PWH
Dr Dicky CHUNG	Chief of Service (Psychiatry), AHNH & NDH & TPH

Prof Tony GIN	Cluster Coordinator (Anaesthesia), NTEC / Honorary Chief of Service (Anaesthesia & Intensive Care Unit), PWH / Chairman & Professor (Anaesthesia & Intensive Care), CUHK
Dr Elsie HUI	Cluster Coordinator (Community Geriatric Assessment Team), NTEC / Chief of Service (Medicine & Geriatrics), SH
Dr Eric HUI	Cluster Coordinator (Family Medicine & Community Health Services) / Cluster Coordinator (Community Partnership & Public Private Interface) / Chief of Service (Family Medicine), NTEC <i>(from November 2014)</i>
Prof Gavin Matthew JOYNT	Cluster Coordinator (Intensive Care Unit), NTEC / Honorary Director (Intensive Care Unit), PWH / Professor (Anaesthesia & Intensive Care), CUHK
Dr Abdul Karim Bin KITCHELL	Chief of Service (Accident & Emergency), NDH
Dr Emily KUN	Chief of Service (Medicine & Geriatrics), TPH
Dr Moon Sing LAI	Chief of Service (Medicine), NDH
Prof Paul LAI	Cluster Coordinator (Surgery), NTEC / Honorary Chief of Service (Surgery), SH & PWH / Professor (Surgery), CUHK
Dr Raymond LAI	Infection Control Officer, NTEC / Chief of Service (Microbiology), PWH
Dr Augustine LAM	Cluster Coordinator (Family Medicine & Community Health Services) / Cluster Coordinator (Community Partnership & Public Private Interface) / Chief of Service (Family Medicine), NTEC <i>(up to October 2014)</i>
Dr Paul LEE	Chief of Service (Diagnostic Radiology), AHNH / Chief of Service (Radiology), NDH
Dr Heng Tat LEONG	Chief of Service (Surgery), NDH & AHNH
Dr Chi Kong LI	Cluster Coordinator (Paediatrics), NTEC / Coordinator (Clinical Services) / Chief of Service (Paediatrics), PWH <i>(up to October 2014)</i>
Prof Dennis LO	Honorary Chief of Service (Chemical Pathology), PWH / Chairman & Professor of Chemical Pathology / Associate Dean (Research), Faculty of Medicine, CUHK
Dr Raymond LO	Cluster Coordinator (Hospice & Palliative Care), NTEC / Chief of Service (Hospice & Palliative Care), BBH / Consultant (Hospice & Palliative Care), SH
Dr Bobby NG	Chief of Service (Orthopaedic Rehabilitation), TPH / Chief of Service (Orthopaedics & Traumatology), AHNH & PWH
Dr Wai Kit NGAI	Chief of Service (Orthopaedics & Traumatology), NDH
Dr Kin Lok SIU	Deputising Director / Senior Medical Officer (Intensive Care Unit), NDH
Dr Michael SUEN	Cluster Coordinator (Pathology), NTEC / Coordinator (Clinical Services), AHNH & TPH / Chief of Service (Pathology), NDH & AHNH

Prof Ka Fai TO	Honorary Chief of Service (Anatomical & Cellular Pathology), PWH / Chairman & Professor (Anatomical & Cellular Pathology), CUHK
Dr Luke TONG	Chief of Service (Paediatrics), NDH / Chief of Service (Paediatrics & Adolescent Medicine), AHNH
Prof Yun Kwok WING	Honorary Chief of Service (Psychiatry), PWH & SH / Professor (Psychiatry), CUHK
Dr Jeffrey WONG	Chief of Service (Imaging & Interventional Radiology), PWH <i>(from January 2015)</i>
Dr William WONG	Chief of Service (Paediatrics), PWH <i>(from November 2014)</i>
Dr John WOO	Chief of Service (Ear, Nose & Throat), AHNH & NDH & PWH
Dr Alvin Lerrmann YOUNG	Chief of Service (Ophthalmology & Visual Sciences), AHNH & PWH

Appendix 4: Membership of Clinical Work Groups

EMERGENCY ADMISSIONS

Chair

Dr Nai Kwong CHEUNG	Coordinator (Clinical Services) / Chief of Service (Accident & Emergency), PWH
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Co-chairs

Dr Kah Lin CHOO	Coordinator (Clinical Services) / Consultant (Medicine), NDH
Dr Francis CHOW	Cluster Coordinator (Medicine), NTEC / Chief of Service (Medicine & Therapeutics), PWH

Members

Dr Jimmy CHAN	Cluster Coordinator (Accident & Emergency), NTEC / Coordinator (Clinical Services), AHNH & TPH / Chief of Service (Accident & Emergency), AHNH
Ms Kit Hoi CHAN	Department Operations Manager (Medicine) / (Intensive Care Unit), AHNH
Dr Michael CHAN	Consultant (Chemical Pathology), PWH
Dr Beatrice CHENG	Clinical Stream Coordinator (Medical Stream), NTEC / Hospital Chief Executive, AHNH & TPH
Dr Chi Hung CHENG	Cluster Coordinator (Major Incident Control Centre), NTEC / Specialist / Consultant (Accident & Emergency), PWH
Dr Yuk Lun CHENG	Chief of Service (Medicine) / (Intensive Care Unit), AHNH
Ms Chun King CHIM	Nurse Consultant (Community), Community Outreach Services Team, PWH
Dr Kin Wing CHOI	Deputy Chief of Service / Consultant (Medicine), AHNH
Dr Maria CHUI	General Manager (Nursing), SH & BBH
Dr Joseph CHUNG	Assistant to Hospital Chief Executive / Coordinator (Clinical Services) / Associate Consultant (Accident & Emergency), PWH
Ms Josephine CHUNG	Department Operations Manager (Accident & Emergency), PWH
Ms Gigi FUNG	Cluster Coordinator (Critical Incident Support Services), NTEC / General Manager (Nursing), AHNH & TPH
Ms Becky HO	Cluster General Manager (Nursing), NTEC / General Manager (Nursing), PWH
Dr Elsie HUI	Cluster Coordinator (Community Geriatric Assessment Team), NTEC / Chief of Service (Medicine & Geriatrics), SH
Dr Abdul Karim Bin KITCHELL	Chief of Service (Accident & Emergency), NDH
Dr Fanny KO	Consultant (Medicine & Therapeutics), PWH

Dr Emily KUN	Chief of Service (Medicine & Geriatrics), TPH
Ms Angela KWOK	Department Operations Manager (Medicine & Therapeutics), PWH
Dr Moon Sing LAI	Chief of Service (Medicine), NDH
Ms Patricia LEE	Department Operations Manager (Medicine & Geriatrics), SH
Prof Philip LI	Service Director (Primary & Community Health Care), NTEC / Deputy Hospital Chief Executive / Chief of Nephrology / Honorary Professor (Medicine & Therapeutics), PWH
Dr Chi Yin MAN	Clinical Stream Coordinator (Surgical Stream), NTEC / Hospital Chief Executive, NDH
Dr Alex NG	Consultant (Imaging & Interventional Radiology), PWH
Dr Man Ho NG	Consultant (Accident & Emergency), PWH
Ms Zenobia SHUM	Cluster General Manager (Administrative Services), NTEC / General Manager (Administrative Services), PWH
Ms Sammei TAM	General Manager (Nursing), NDH
Ms Wai Fong TANG	Department Operations Manager (Accident & Emergency), NDH
Ms Mabel TONG	Department Operations Manager (Medicine), NDH
Mr Wang Fat TSOI	Department Operations Manager (Medicine & Geriatrics), TPH
Ms Kwai Lin YEUNG	Department Operations Manager (Accident & Emergency), AHNH
Dr Richard YEUNG	Coordinator (Clinical Services), AHNH & TPH / Consultant (Accident & Emergency), AHNH
Dr Ada YU	Associate Consultant (Accident & Emergency), AHNH

AMBULATORY AND COMMUNITY CARE SERVICES

Chair

Dr Wing Yee SO	Deputy Service Director (Quality & Safety), NTEC / Coordinator (Clinical Services) / Consultant (Medicine & Therapeutics), PWH
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Co-chairs

Dr Eric HUI	Cluster Coordinator (Family Medicine & Community Health Services) / Cluster Coordinator (Community Partnership & Public Private Interface) / Chief of Service (Family Medicine), NTEC
Dr Ho Yin LEUNG	Director (Day Rehabilitation Centre) / Associate Consultant (Medicine), NDH

Members

Dr Chi Hung CHENG	Cluster Coordinator (Major Incident Control Centre), NTEC / Specialist / Consultant (Accident & Emergency), PWH
Ms Chun King CHIM	Nurse Consultant (Community), Community Outreach Services Team, PWH
Dr Kah Lin CHOO	Coordinator (Clinical Services) / Consultant (Medicine), NDH
Mr Albert CHOW	Department Manager (Physiotherapy), NDH
Dr Flora KO	Department Manager (Occupational Therapy), NDH
Mr Anthony LAU	Cluster Coordinator (Physiotherapy), NTEC / Department Manager (Physiotherapy), AHNH
Dr Jenny LEE	Associate Consultant (Medicine), AHNH

INTEGRATED ELDERLY CARE SERVICES

Chair

Dr Elsie HUI	Cluster Coordinator (Community Geriatric Assessment Team), NTEC / Chief of Service (Medicine & Geriatrics), SH
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Co-chair

Dr Emily KUN	Chief of Service (Medicine & Geriatrics), TPH
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Members

Mr Frederick AU	Cluster Coordinator (Occupational Therapy), NTEC / Department Manager (Occupational Therapy), PWH
Ms Becky Y T CHAN	Cluster Coordinator (Speech Therapy), NTEC / Senior Speech Therapist, PWH
Dr Jimmy CHAN	Cluster Coordinator (Accident & Emergency), NTEC / Coordinator (Clinical Services), AHNH & TPH / Chief of Service (Accident & Emergency), AHNH
Ms Siu Yin CHAN	Ward Manager, Community Outreach Services Team, AHNH
Dr Nai Kwong CHEUNG	Coordinator (Clinical Services) / Chief of Service (Accident & Emergency), PWH
Ms Chun King CHIM	Nurse Consultant (Community), Community Outreach Services Team, PWH
Dr Wency HO	Associate Consultant (Medicine & Therapeutics), PWH
Dr Eric HUI	Cluster Coordinator (Family Medicine & Community Health Services) / Cluster Coordinator (Community Partnership & Public Private Interface) / Chief of Service (Family Medicine), NTEC
Dr Abdul Karim Bin KITCHELL	Chief of Service (Accident & Emergency), NDH
Ms Cecilia KWAN	Nurse Consultant (Palliative Care), BBH
Prof Linda LAM	Cluster Coordinator (Psychiatry), NTEC / Chairman & Professor (Psychiatry), CUHK
Mr Anthony LAU	Cluster Coordinator (Physiotherapy), NTEC / Department Manager (Physiotherapy), AHNH
Dr Jenny LEE	Associate Consultant (Medicine), AHNH
Ms Patricia LEE	Department Operations Manager (Medicine & Geriatrics), SH
Dr Ho Yin LEUNG	Director (Day Rehabilitation Centre) / Associate Consultant (Medicine), NDH
Ms Tsui Lin TSANG	Ward Manager, Community Outreach Services Team, NDH
Mr Wang Fat TSOI	Department Operations Manager (Medicine & Geriatrics), TPH
Ms Siu Yin YUNG	Ward Manager, Community Outreach Services Team, PWH

CLUSTER SURGICAL SERVICES

Chair

Prof Paul LAI	Cluster Coordinator (Surgery), NTEC / Honorary Chief of Service (Surgery), SH & PWH / Professor (Surgery), CUHK
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Co-chair

Dr Heng Tat LEONG	Chief of Service (Surgery), NDH & AHNH
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Members

Dr Kin Wing CHAN	Director (Day Surgery Unit) / Associate Consultant (Surgery), AHNH
Dr Phoon Ping CHEN	Director (Simulation Training Centre), NTEC / Chief of Service (Anaesthesia), NDH & AHNH
Dr Beatrice CHENG	Clinical Stream Coordinator (Medical Stream), NTEC / Hospital Chief Executive, AHNH & TPH
Dr Amy CHO	Consultant (Anaesthesia & Intensive Care Unit), PWH
Ms Becky HO	Cluster General Manager (Nursing), NTEC / General Manager (Nursing), PWH
Prof Gavin Matthew JOYNT	Cluster Coordinator (Intensive Care Unit), NTEC / Honorary Director (Intensive Care Unit), PWH / Professor (Anaesthesia & Intensive Care), CUHK
Dr Paul LEE	Chief of Service (Diagnostic Radiology), AHNH / Chief of Service (Radiology), NDH
Dr Chi Yin MAN	Clinical Stream Coordinator (Surgical Stream), NTEC / Hospital Chief Executive, NDH
Dr Michael SUEN	Cluster Coordinator (Pathology), NTEC / Coordinator (Clinical Services), AHNH & TPH / Chief of Service (Pathology), NDH & AHNH
Prof Ka Fai TO	Honorary Chief of Service (Anatomical & Cellular Pathology), PWH / Chairman & Professor (Anatomical & Cellular Pathology), CUHK

PERI-OPERATIVE & ICU SERVICES

Chair

Prof Tony GIN	Cluster Coordinator (Anaesthesia), NTEC / Honorary Chief of Service (Anaesthesia & Intensive Care Unit), PWH / Chairman & Professor (Anaesthesia & Intensive Care), CUHK
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Co-chairs

Dr Phoon Ping CHEN	Director (Simulation Training Centre), NTEC / Chief of Service (Anaesthesia), NDH & AHNH
Dr Sheung On SO	Consultant (Medicine) / (Intensive Care Unit), AHNH

Members of Peri-operative Sub-group

Dr Beatrice CHENG	Clinical Stream Coordinator (Medical Stream), NTEC / Hospital Chief Executive, AHNH & TPH
Mr Alick CHIU	Department Operations Manager (Operating Theatre), NDH
Dr Christopher CHU	Consultant (Anaesthesia), AHNH
Dr Po Tong CHUI	Consultant (Anaesthesia & Intensive Care Unit), PWH
Prof Paul LAI	Cluster Coordinator (Surgery), NTEC / Honorary Chief of Service (Surgery), SH & PWH / Professor (Surgery), CUHK
Ms Sindy LAM	Ward Manager (Operating Suite), AHNH
Ms Wanda LEE	Deputising Department Operations Manager (Operating Theatre), PWH
Dr Chi Yin MAN	Clinical Stream Coordinator (Surgical Stream), NTEC / Hospital Chief Executive, NDH
Ms Peggy TSUNG	Nurse Consultant (Peri-operative Care), NTEC

Members of ICU Sub-group

Dr Christopher CHAN	Director (Intensive Care Unit) / Consultant (Medicine), AHNH
Ms Kit Hoi CHAN	Department Operations Manager (Medicine) / (Intensive Care Unit), AHNH
Dr Beatrice CHENG	Clinical Stream Coordinator (Medical Stream), NTEC / Hospital Chief Executive, AHNH & TPH
Dr Francis CHOW	Cluster Coordinator (Medicine), NTEC / Chief of Service (Medicine & Therapeutics), PWH
Dr Viola CHOW	Associate Consultant (Microbiology), PWH
Ms Ka Man HO	Department Operations Manager (Intensive Care Unit), PWH

Prof Gavin Matthew JOYNT	Cluster Coordinator (Intensive Care Unit), NTEC / Honorary Director (Intensive Care Unit), PWH / Professor (Anaesthesia & Intensive Care), CUHK
Dr Raymond LAI	Infection Control Officer, NTEC / Chief of Service (Microbiology), PWH
Dr Yeong Man LAI	Consultant (Radiology), NDH
Dr Chi Yin MAN	Clinical Stream Coordinator (Surgical Stream), NTEC / Hospital Chief Executive, NDH
Dr Bobby NG	Chief of Service (Orthopaedic Rehabilitation), TPH / Chief of Service (Orthopaedics & Traumatology), AHNH & PWH
Dr Kin Lok SIU	Deputising Director / Senior Medical Officer (Intensive Care Unit), NDH
Ms Pui Yi TANG	Department Operations Manager (Intensive Care Unit), NDH
Dr Wai Kong TSANG	Associate Consultant (Clinical Oncology), PWH
Dr Ki WANG	Consultant (Imaging & Interventional Radiology), PWH

Members of Pain Management Sub-group

Dr Simon CHAN	Consultant (Anaesthesia & Intensive Care Unit), PWH
Dr Yuen Yan CHAN	Associate Consultant (Family Medicine & General Out-patient Clinic), NTEC
Dr Alice KWOK	Cluster Coordinator (Clinical Psychology), NTEC / Senior Clinical Psychologist (Clinical Psychology), PWH
Mr Anthony LAU	Cluster Coordinator (Physiotherapy), NTEC / Department Manager (Physiotherapy), AHNH
Dr Sheung Wai LAW	Consultant (Orthopaedic Rehabilitation), TPH
Dr Yee Chi LEE	Associate Consultant (Anaesthesia), AHNH
Dr Raymond LO	Cluster Coordinator (Hospice & Palliative Care), NTEC / Chief of Service (Hospice & Palliative Care), BBH / Consultant (Hospice & Palliative Care), SH
Ms Frances LOUIE	Department Manager (Occupational Therapy), AHNH
Ms Marlene MA	Advanced Practice Nurse (Pain Management Centre), NTEC
Dr David SUN	Deputy Service Director (Quality & Safety), NTEC / Coordinator (Clinical Services), NDH / Consultant (Neurosurgery), Surgery, PWH
Mr Victor TAM	Cluster Coordinator (Medical Social Services Unit), NTEC / Coordinator of Volunteer Services, TPH / Department Manager (Medical Social Services Unit), AHNH
Prof Yun Kwok WING	Honorary Chief of Service (Psychiatry), PWH & SH / Professor (Psychiatry), CUHK
Ms Yvonne YAU	Associate Consultant (Clinical Oncology), PWH

MUSCULOSKELETAL SERVICES

Chair

Prof Jack CHENG	Honorary Consultant (Orthopaedics & Traumatology), PWH / Chairman & Professor (Orthopaedics & Traumatology), CUHK
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Co-chair

Dr Wency HO	Associate Consultant (Medicine & Therapeutics), PWH
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Members

Mr Frederick AU	Cluster Coordinator (Occupational Therapy), NTEC / Department Manager (Occupational Therapy), PWH
Dr Alexander AU YANG	Cluster Coordinator (Prosthetic-Orthotic), NTEC / Department Manager (Prosthetic-Orthotic), PWH
Ms Jessica CHAN	Department Operations Manager (Orthopaedics & Traumatology), PWH
Dr Phoon Ping CHEN	Director (Simulation Training Centre), NTEC / Chief of Service (Anaesthesia), NDH & AHNH
Dr Nai Kwong CHEUNG	Coordinator (Clinical Services) / Chief of Service (Accident & Emergency), PWH
Dr Catherine CHUI	Associate Consultant (Medicine & Geriatrics), TPH
Dr Po Tong CHUI	Consultant (Anaesthesia & Intensive Care Unit), PWH
Dr Jason FAN	Consultant (Orthopaedics & Traumatology), AHNH
Mr Titanic LAU	Department Manager (Physiotherapy), TPH
Dr Sheung Wai LAW	Consultant (Orthopaedic Rehabilitation), TPH
Dr Jenny LEE	Associate Consultant (Medicine), AHNH
Dr Man Fai LEE	Associate Consultant (Orthopaedics & Traumatology), NDH
Dr Ho Yin LEUNG	Director (Day Rehabilitation Centre) / Associate Consultant (Medicine), NDH
Dr Maria LEUNG	North District Coordinator / Consultant (Family Medicine & General Out-patient Clinic), NTEC
Dr Alex NG	Consultant (Imaging & Interventional Radiology), PWH
Dr David SUN	Deputy Service Director (Quality & Safety), NTEC / Coordinator (Clinical Services), NDH / Consultant (Neurosurgery), Surgery, PWH
Dr Kwok Fai TAM	Consultant (Radiology), NDH
Prof Lai Shan TAM	Honorary Consultant (Medicine & Therapeutics), PWH / Professor (Medicine & Therapeutics), CUHK
Mr Victor TAM	Cluster Coordinator (Medical Social Services Unit), NTEC / Coordinator of Volunteer Services, TPH / Department Manager (Medical Social Services Unit), AHNH
Dr Ning TANG	Consultant (Orthopaedics & Traumatology), PWH

CANCER SERVICES

Chair

Prof Anthony CHAN	Cluster Coordinator (Oncology), NTEC / Honorary Chief of Service (Clinical Oncology), PWH / Chairman & Professor (Clinical Oncology) / Associate Dean (External Affairs), Faculty of Medicine, CUHK
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Co-chairs

Dr Wing Cheong CHAN	Consultant (Surgery), NDH
Dr Janet LEE	Consultant (Surgery), PWH

Members

Dr Grace CHAN	Senior Pharmacist (Pharmacy), PWH
Ms Shirley CHANG	Deputy General Manager (Nursing) / Department Operations Manager (Clinical Oncology), PWH
Dr Michael CHEUNG	Coordinator (Clinical Services) / Consultant (Surgery), NDH
Mr See To CHUI	Department Operations Manager (Surgery), PWH
Dr Simon HOU	Consultant (Urology), Surgery, PWH
Dr Edwin HUI	Deputy Chief of Service / Consultant (Clinical Oncology), PWH
Ms Irene HUI	Clinical Psychologist (Clinical Psychology), AHNH
Mr Gary KWOK	Department Manager (Clinical Oncology), PWH
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Dr Raymond LO	Cluster Coordinator (Hospice & Palliative Care), NTEC / Chief of Service (Hospice & Palliative Care), BBH / Consultant (Hospice & Palliative Care), SH
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Prof Ka Fai TO	Honorary Chief of Service (Anatomical & Cellular Pathology), PWH / Chairman & Professor (Anatomical & Cellular Pathology), CUHK
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Co-chair

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Members

Dr Chak Chung CHAN	Consultant (Radiology), NDH / Consultant (Diagnostic & Radiology), AHNH
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Dr Ho Yuen CHEUNG	Deputy Chief of Service / Consultant (Surgery), NDH
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Prof James LAU	Honorary Director (Endoscopy Centre) / Honorary Consultant (Surgery), PWH / Chairman & Professor (Surgery), CUHK
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Dr Kit Fai LEE	Consultant (Surgery), PWH

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Chair

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Members

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Chair

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Co-chairs

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Dr David SUN	Deputy Service Director (Quality & Safety), NTEC / Coordinator (Clinical Services), NDH / Consultant (Neurosurgery), Surgery, PWH
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Prof Yun Kwok WING	Honorary Chief of Service (Psychiatry), PWH & SH / Professor (Psychiatry), CUHK
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Members

Dr Anne CHAN	Associate Consultant (Chief of Movement Disorders), Medicine & Therapeutics, PWH
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Dr Danny CHAN	Consultant (Neurosurgery), Surgery, PWH
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Ms Susanna CHAN	General Manager (Nursing), SCH / Department Operations Manager (Surgery), SH
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Prof Winnie CHU	Honorary Consultant (Imaging & Interventional Radiology), PWH / Professor (Imaging & Interventional Radiology), CUHK
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Prof Alexander LAU	Assistant Professor (Medicine & Therapeutics), CUHK
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Ms Ka Yee LAU	Advanced Practice Nurse (Surgery), PWH
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Dr Howan LEUNG	Associate Consultant (Chief of Epilepsy & Electrodiagnostic Unit), Medicine & Therapeutics, PWH
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Prof Thomas LEUNG	Lee Quo Wei Associate Professor of Neurology (Chief of Acute Stroke Unit), Medicine & Therapeutics, CUHK
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Mr Yat Wo LIU	Ward Manager (Neurosurgery), Surgery, PWH
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Dr Wai Kit MAK	Associate Consultant (Neurosurgery), Surgery, PWH
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Prof Vincent MOK	Professor (Medicine & Therapeutics), CUHK
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Prof Ho Keung NG	Professor (Anatomical & Cellular Pathology), CUHK
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Dr Stephanie NG	Scientific Officer (Neurosurgery), Surgery, PWH
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Prof Lin SHI	Assistant Professor (Medicine & Therapeutics), CUHK
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Prof Adrian WONG	Research Assistant Professor (Medicine & Therapeutics), CUHK
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Prof George WONG	Honorary Consultant (Neurosurgery), Surgery, PWH / Professor (Surgery), CUHK
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Ms Like WONG	Nurse Consultant (Neurosurgery), Surgery, PWH
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Prof Simon YU	Honorary Consultant (Imaging & Interventional Radiology), PWH / Professor (Imaging & Interventional Radiology), CUHK
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Dr Xian Lun ZHU	Consultant (Neurosurgery), Surgery, PWH
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MENTAL HEALTH SERVICES

Chair

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Co-chair

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Members

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Dr Teresa CHAN	Consultant (Psychiatry), TPH
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Mr Lee Shun YIP	Ward Manager (Psychiatry), PWH & SH

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Chair

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Co-chair

Dr William WONG	Chief of Service (Paediatrics), PWH
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Members

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Ms Becky S H CHAN	Department Operations Manager (Paediatrics & Adolescent Medicine), AHNH
Ms Macy CHAU	Deputising Department Operations Manager / Ward Manager (Obstetrics & Gynaecology), NTEC
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Ms Gladys HA	Nurse Specialist (Paediatrics), PWH
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PATHOLOGY & RADIOLOGY SERVICES

Chair

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Co-chairs

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Dr Jeffrey WONG	Chief of Service (Imaging & Interventional Radiology), PWH

Members

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Mr Alan YAU	Laboratory Manager (Anatomical & Cellular Pathology), PWH

EDUCATION, TRAINING & RESEARCH

Chair

Prof Dennis LO	Honorary Chief of Service (Chemical Pathology), PWH / Chairman & Professor of Chemical Pathology / Associate Dean (Research), Faculty of Medicine, CUHK
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Co-chairs

Prof Paul LAI	Cluster Coordinator (Surgery), NTEC / Honorary Chief of Service (Surgery), SH & PWH / Professor (Surgery), CUHK
Dr Chi Kong LI	Cluster Coordinator (Paediatrics), NTEC / Coordinator (Clinical Services) / Consultant (Paediatrics), PWH

Members

Prof Sek Ying CHAIR	Director & Professor, The Nethersole School of Nursing, CUHK
Prof Anthony CHAN	Cluster Coordinator (Oncology), NTEC / Honorary Chief of Service (Clinical Oncology), PWH / Chairman & Professor (Clinical Oncology) / Associate Dean (External Affairs), Faculty of Medicine, CUHK
Prof Henry CHAN	Honorary Consultant (Medicine & Therapeutics), PWH / Professor (Medicine & Therapeutics) / Assistant Dean (External Affairs), Faculty of Medicine, CUHK
Prof Juliana CHAN	Honorary Consultant (Medicine & Therapeutics), PWH / Chair Professor (Medicine & Therapeutics), CUHK
Prof Wai Yee CHAN	Professor & Director, School of Biomedical Sciences, CUHK
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Dr Kah Lin CHOO	Coordinator (Clinical Services) / Consultant (Medicine), NDH
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Ms Sammei TAM	General Manager (Nursing), NDH
Mr Simon WONG	Department Manager (Occupational Therapy), TPH
Dr John WOO	Chief of Service (Ear, Nose & Throat), AHNH & NDH & PWH
Mr Edwin WU	Cluster Coordinator (Volunteer Service, Rehab Shop & Health Resource Centre), NTEC / Senior Physiotherapist, PWH
Prof Joan ZUO	Acting Director & Professor, School of Pharmacy, CUHK



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