Health Service Delivery Organizing Frameworks

Summary of the Literature and Jurisdictional Review

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A Jurisdictional Review
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Table of Contents

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1.0 Summary

1.1 Background

The Child Health in BC Forum (co-hosted by Child Health BC and the Ministry of Health Services) highlighted the need for a unifying vision and framework for defining, planning and coordinating child & youth health services in BC (Forum Proceedings) (6). Such a framework is needed to assist in the planning and coordination of services for children & youth provincially, within health authorities and across multiple sectors.

A specific project has been undertaken by Child Health BC (CHBC) to fill this need. The **goal** of this project is to develop and make recommendations for the implementation of an organizing framework for defining, planning and coordinating the delivery of health care services for children and youth in BC.

The project has two deliverables:

1. A review of relevant organizing frameworks in other jurisdictions including from other specialties beyond child health.
2. An organizing framework for defining, planning and coordinating child & youth health care services, specifically reflecting the needs and context of British Columbia.

The purpose of this paper is to focus on the first of the deliverables, namely a summary of organizing frameworks used in other jurisdictions and/or specialties. It is anticipated this information will be useful in developing the specifics of a BC-specific framework.

1.2 Organizing Frameworks

1.2.1 Process

Three sources were utilized to identify the use of organizing frameworks to define, plan and coordinate health services:
- Internet
- Literature
- Contact via e-mail/telephone interviews

An extensive search strategy was utilized with a targeted search of the literature and websites of national, international and state governments and professional governing bodies. Specific targets

included the provinces of Canada, the United Kingdom, New Zealand, Australia and the US. All searching was done in English language only. Search terms included but were not limited to: organizing frameworks, levels of care, tiers of service, quality improvement frameworks, health service delivery frameworks, network models, role delineation, hospital typology and health services organization.

1.2.2 Findings

Key findings of the internet and literature search and information from e-mails/telephone interviews is summarized as follows:

- Regarding children and youth specifically: While there were several well developed documents that described guidelines or standards for the care of children and youth, there were very few jurisdictions that used organizing frameworks as a way of defining, planning and coordinating health services.

- Regarding the settings for frameworks: Of the frameworks that were identified, none of them addressed multiple populations (sub-populations) in multiple settings (local, community, regional, provincial; inpatient, outpatient, outreach, public health etc) as is desired in BC.

- Regarding their frame of reference: Frameworks, for the most part, focused on specific populations (e.g., children with special needs, adults requiring rehabilitation services, patients requiring oncology or palliative care services) or specific service locations (e.g., neonatal or adult intensive care units, emergency departments). Service location frameworks mostly focused on hospital services (inpatient, ambulatory and, in some cases, outreach). Some frameworks described "services" which crossed populations and sites, such as the Queensland framework.

- Regarding detailed exemplars: Two of the most comprehensive organizing frameworks were developed in Australia, one in Queensland (includes Brisbane and the surrounding areas) and one in New South Wales (NSW – includes Sydney and the surrounding areas).
  - The Queensland Clinical Services Capability Framework for Public and Licensed Private Health Facilities version 3 (38) was developed in 2011. The framework describes 6 levels of services (up from 5 in version 2) for 28 specialty and clinical support services. This includes 7 child-specific service modules (new to V3.0): children's anaesthetic services, children's cancer services, children's emergency services, children's intensive care services, children's medical services, children's radiation oncology services, children's surgical services, child and youth mental health and forensic mental health services, evolve therapeutic services and perinatal and infant mental health services. For each of the modules, services and service requirements are described for each level of service.
  - The NSW Guide to the Role Delineation of Health Services (30) was developed in 2002 and is still in use today. The guide describes 5 levels of service for each of the clinical support

services (e.g., pathology, pharmacy, diagnostic imaging) and for each of the core services (e.g., endocrinology, neurology, pediatric medicine, pediatric surgery). The guide then recommends the level of clinical support services required for each level of core service. A companion guide was published in 2004 which adjusts the requirements for rural populations.

- Regarding other countries examples: Scotland (47,48,49) and Canada (BC and Ontario) (3-9; 22-24) have been active in developing organizing frameworks. These appear to be earlier in their development than the NSW and Queensland experience. New Zealand has an expressed interest in a framework but nothing currently can be found to be in place.

- Regarding networks: Networks for care delivery and planning are a common theme in all frameworks. A "hub and spoke" model is often delineated. Networks are recommended for local geographic areas (health, education and social services) as well as across geographic areas (for specialty services). Many of the frameworks group hospitals into "clusters," with a regional or tertiary hospital providing leadership and support to community hospitals.

- Regarding the descriptors within the frameworks: Most organizing frameworks define 4 to 8 levels of care (6 is the most common). The frameworks describe the (a) populations served and scope of services recommended for each level of care; and (b) environment/resources required at each level of care including:
    o Clinical services (core services and clinical support services).
    o Types of care providers/staffing mix/expertise and, in some cases, staffing ratios.
    o Level of physician specialist/sub-specialist.
    o Facilities (e.g., designated pediatric beds/area, single rooms).
    o Equipment.
    o Guidelines/protocols (e.g., transfer to another facility, care for common conditions, outreach).
    o Integration with pediatric ambulatory services, emergency departments and primary care teams.
    o Education and research responsibilities.
    o Outcome indicators.

Section 2.0 of this paper provides details of the frameworks reviewed. The frameworks are organized by country and then alphabetically within each country. The literature that was reviewed is listed under its own heading.

2.0   Service Delivery Frameworks: Key Learnings

2.1   Canada

Most of the work on service delivery frameworks/levels of care in Canada has been done in British Columbia and Ontario (Greater Toronto Area Child Health Network).

2.1.1   British Columbia

BC Children's Hospital Oncology/Hematology/BMT Division. Vancouver, BC, Canada. Levels of Care in the Community. 2007. (3)

- While more specific detail is provided, this framework has 5 levels of care which involve increasing levels of complexity:
  - Level 0: oral medications
  - Level 1: simple chemotherapy (divided into levels 1A and 1B)
  - Level 2: complex outpatient chemotherapy
  - Level 3: complex inpatient chemotherapy
  - Level 4: tertiary pediatric oncology centre (BCCH)
- Defines each level and identifies required services at each level: pharmacy, laboratory, nursing skills, communication and equipment.

Fraser Health Authority, Clinical Service Plan for Child & Youth Acute Services (2006) & Pediatric Service Review. 2009. (15)

- Fraser Health Authority (FHA) is one of 5 geographic (and 6 total) health regions in the province of British Columbia. A Clinical Service Plan for Child & Youth Acute Services developed in 2006 (for children and youth ages 29 days to 16 years). The plan proposed one pediatric specialty centre (comprehensive services; supporting and leading the network), 2 regional hospitals (services for low-moderate risk cases) and multiple community hospitals.
  - Pediatric specialty centre: all types of inpatient services, combined pediatric med/surg units, day surgery, designated children's OR and PACU, subspecialty outpatient clinics, pediatric rehab services, pediatric specialists).
  - Regional hospitals: services as above except may not be designated children's OR and PACU.
  - Community hospitals: outpatient care and dedicated room in ED for 12-48 hour stays, outpatient clinics specifically for children).
- In early 2009, FHA embarked on hospital typology work. Their concept was to designate a role for each of the 12 FH hospitals, including a list of parameters and criteria for the type of services provided. There remains work to be done regarding details on how to operationalize the concepts in terms of case types and numbers and other features at each type of hospital. The work is currently on hold. Within the model, four levels of hospitals were proposed:

- o Regional hospitals: comprehensive range of tertiary and secondary services and sub-specialties. Must have capacity to ensure access to tertiary services on a region-wide basis.
    - o Community hospital level 1: Provides core secondary services and some specialty services to the community. Could become hospitals with a defined "area of specialty focus."
    - o Community hospital level 2: Provides core secondary services to the community. Medical care is predominantly provided by GPs working with consultant medical colleagues. Bridges primary and secondary care. Could also have a defined "area of focus."
    - o Community hospital level 3: Offers integrated primary and secondary health care services on a day/outpatient care basis and is supported by community-based professionals.
- Review of pediatric services was completed in 2009. At that time, 5/12 FHA hospitals had designated inpatient pediatric beds (total of 53 beds; 3 sites have dedicated pediatric units while 2 sites have mixed units with adult patients), although 2/12 hospitals admit pediatric patients seen in ED; all 12 FHA hospitals see pediatric patients in their ED. The review was completed utilizing the levels of care proposed in the hospital typology work with a greater degree of specificity for pediatric services.

Ministry of Health Services, and Ministry of Children and Family Development. Healthy Minds, Healthy People: a 10-Year Plan to Address Mental Health and Substance Use in British Columbia. 2010. (24)

- Provides a 10-year plan to improve the mental health and well-being of the population, improve the quality and accessibility of services for people with mental health and substance use problems and reduce the economic costs to the public and private sectors resulting from mental health and substance use problems.
- Proposes a population health approach, starting with mental health promotion strategies (least intense service impacting highest number of people), then targeted prevention and risk / harm reduction strategies and finally therapeutic intervention (highest service intensity and fewest number of people).
- Strategies address both children and adults.

Perinatal Services BC. Levels of Perinatal Care in British Columbia. 2005. (35)

- This "levels of care" approach describes the scope of services, tests / treatments, personnel and diagnostic facilities for 3 levels (with total of 7 sub-levels) of maternal and infant (newborn services). Level I (IA and IB), Level II (IIA and IIB) and Level III (IIIA, IIIB and IIIC).

Ministry of Children and Family Development. Strong, Safe and Supported: a Commitment to BC's Children and Youth. 2008. (23)

- Provides an overarching "Vision" which is that BC children and youth are strong, safe and supported to reach their full potential.

- Describes an integrated framework for policy development and service provision based on 5 pillars: prevention, early intervention, intervention and support, the Aboriginal approach and quality assurance.

Ministry of Children and Family Development. Children and Youth with Special Needs: A Framework for Action. 2008. (22)

- Framework focuses on children and youth with special developmental or health needs.
- Describes 4 tiers of services, the purpose of each tier and clinical service, knowledge management & exchange (research and teaching) and outcome evaluation & quality improvement responsibilities for each tier.
- Further discussion with one of the project leads (M. O'Donnell) provided further detail regarding the model which was based on work previously completed in the UK (2).
- Four tiers of service:
  1. Local universal services
     - "Broad reaching" service providers who deliver first line services to children and their families (e.g., public health nurses, family physicians, social workers and teachers).
     - Goal is prevent developmental concerns which are preventable and, for those not preventable, to enable families to feel comfortable bringing concerns forward. Screening/surveillance and appropriate referral is a key activity at Tier One.
  2. Community-based services
     - Local community providers with dedicated expertise to children (e.g. pediatrician, speech pathologist at health unit or child development centre), working as an individual or perhaps working as a team, for communities with a population base of under 250,000.
     - Point of access and "home team" for children and youth with health or developmental needs.
  3. Regional level child development services
     - Specialized services that exist to support a region with a population base of 700,000 – 1,000,000 people.
     - Provide additive expertise in specialties of child development to children from all over the region (complement community-based services at Tier two).
     - Support a network of service providers that includes all local/community teams and providers.
  4. Provincial sub-specialized services
     - One of a kind sub-specialized services;
     - Provide additive expertise in sub-specialties of child development to children
     - Lead QI initiatives at a provincial level.
     - Facilitate training and skill development for formal (e.g. university) and informal (e.g. providers wanting additional training) learners.

Representative for Children and Youth and Office of the Provincial Health Officer. Growing Up in BC. 2010. (40)

- Provides a well-being framework for children and youth, including key measures of success and available outcome data.
- Framework describes 6 outcome domains: child health, child learning, child safety, family economic well-being, child behaviour and family, peer and community connections.

Vancouver Island Health Authority. Pediatric Care in the Vancouver Island Region: Strategic Directions and Strategies. 2009. (52)

- Document formally establishes a pediatric network of services in services, both at a clinical and a planning and strategic level. Identifies each hospital site as providing one of the following levels of care:
  - Primary & emergency care: emergency and primary care for children, no pediatricians available.
  - Level 1 site: pediatrician available, some pediatrics nursing expertise, no specific pediatric beds.
  - Level 2 site: pediatricians available, may have some pediatric sub-specialties and has specific pediatric beds, multidisciplinary team and programs.
  - Level 3 site: pediatric specific beds, pediatricians, pediatric subspecialists, pediatric multidisciplinary team always available and PICU.
- Report notes that the complexity of hospital pediatric care that can be provided at each site depends on the availability of pediatricians but also of nursing, allied health and specialty services (e.g., medical imaging, laboratory services and anesthesia) as well as sub-specialists. Some sites have the pediatricians available but do not have capacity in some of the other areas.

2.1.2   Ontario

In the late 1990's, the Ontario Health Services Restructuring Commission (HSRC) recommended the establishment of child health networks in Ontario's 4 largest urban centres (Toronto, Hamilton, London and Ottawa). A search of the internet suggests that only the Toronto and Ottawa networks continue to be active. Only the Greater Toronto Are (GTA) Child Health Network (CHN) has done work around levels of care as noted below.

In 2006, the Ontario Ministry of Health (MOH) divided the province into 14 Local Health Integration Networks (LHINs). By 2007, LHINs assumed full responsibility for health services in their communities. The main role of the LHINs is to plan, fund and integrate health services locally. The LHINs are working collaboratively with the child health networks.

In 2008, the Ontario MOH established the Provincial Council for Maternal Child Health (PCMCH) (expansion of the Provincial Council for Children's Health which was formed in 2006). The Council provides advice to the MOH and supports system improvement on priorities and strategies related to maternal/newborn and child/youth health care. While recognizing the continuum of care, the scope of the PCMCH is secondary, tertiary and quaternary services, delivered in both community and hospital settings. It also responds to the needs of disadvantaged communities across Ontario.

The goal is to support the development of a system of care that provides timely, equitable, accessible, high quality, evidence-based, family-centred care in an efficient and effective manner.

Child Health Network for the Greater Toronto Area. Guidelines for the Clinical Scope of Children's Services (2001) (8) & Confirmation of Planning Clusters: Facilitating Local Planning for Maternal/Newborn and Children's Services in the GTA (2001) (9).

- *Guidelines for the Clinical Scope of Children's Services* describes a regionalized system of children's hospital services in the Greater Toronto Area (GTA).
- Outlines guiding principles for a regional system of care (e.g., role in GTA, receipt of services as close to home as possible, timely transfers, continuous quality improvement, etc).
- Includes 20 hospitals that provide maternal/newborn, pediatric acute and rehabilitative services and 10 Community Care Access Centres (CCACs).
- Designates 3 levels of hospital services:
  o Acute care community hospitals/short stay units (7): primary and ambulatory care in short stay units to children with a limited acuity of illness and a high probability of discharge within 48 hours
  o Regional children's health centres (9): inpatient and specialized ambulatory care; accommodate the care of children with more complex problems
  o Tertiary care centres (Hospital for Sick Children and Bloorview MacMillan Centre).
- Outlines the profile, minimum and maximum scope of services, admission and exclusion criteria, and transfer of care principles for each level of care.
- Suggests working in regional clusters to coordinate care; regional cluster consists of a Central Community Care Access Centre (CCAC), acute care community hospital(s) and one or more regional children's health centres serving a particular geographic area. Regional clusters are expected to work with families, community health service providers and tertiary centres to meet the needs of the geographic area.
- *Confirmation of Planning Clusters (August 2001)* confirms the designation of 4 clusters for planning maternal/newborn and children's services in the Greater Toronto Area: East, West, North and Central.
- No approved updates to the document since 2001 (some revisions were proposed after completion of an internal review process in 2005; these were never formalized).

Child Health Network for the Greater Toronto Area. Paediatric Transfer Protocols: Acute Transfers & Retrotransfers. 2003. (7)

- Outlines the principles and procedures for pediatric acute transfers and retrotransfers with the Greater Toronto Area. Utilizes the designated levels for hospital services.

Provincial Council for Maternal and Child Health Standardized Maternal Newborn Levels of Care. (37)

- Document developed which proposes standardized levels of maternal/newborn services to the Ontario MOH; addresses hospital care only; working on an implementation strategy.
- Provides a description, diagnostic test/treatments and types of human resources recommended for each level of maternal/newborn care.
- Have not developed standardized levels of child/youth services.

2.2 Australia

Australia has done considerable work on developing child/youth health service delivery frameworks/levels. Within Australia, the states of New South Wales (NSW) and Queensland have been the most active. Both have developed frameworks which are currently in use and form the cornerstone of health planning in these states.

Australian Medical Workforce Advisory Committee. Sustainable Specialist Services: a Compendium of Requirements – 2004 Update. 2004 (1)

- Describes specialist requirements for various sizes of population catchment areas (10,000-20,000 people, 20,000-60,000 people, 50,000 – 80,000 people and 80,000 or more people.
- Includes sections for pediatric surgery and child and adolescent psychiatry in addition to "regular" services that would include children and adults (e.g., emergency departments, anesthesia, intensive care, etc).

Palliative Care Australia. A Guide to Palliative Care Service Development: a Population Based Approach. 2005. (34)

- Defines the palliative care population according to patient need: Group A (primary care; access to specialty care not required), B (intermediate need; life limiting illness with sporadic exacerbations of pain or other symptoms) and C (complex need; complex physical, social, psychological and / or spiritual needs that do not respond to protocols).
- Provides a framework for the provision of palliative care services. 4 levels of services; primary care providers (provided everywhere), specialist palliative care service resource levels 1 (provided in metropolitan and small towns), 2 (provided in metropolitan and regional centres) and 3 (provided in metropolitan and large regional centres).

The Royal Australasian College of Physicians (RACP) Paediatrics & Child Health Division, the Association for the Wellbeing of Children in Healthcare, and Children's Hospitals Australasia. Standards for the Care of Children and Adolescents in Health Services. 2008.

- Describes standards of care for children and adolescents in inpatient units, ICUs, EDs, day-care facilities, surgery & recovery, outpatients, ambulatory care, community health centres, child health centres and mental health units.
- Includes general statements of philosophy as well as specifics re facilities, equipment and staff training.

2.2.1 New South Wales (Australia – Sydney & surrounding area)

NSW Department of Health. Children and Adolescents - Guidelines for Care in Acute Care Settings. 2010. (25)

- Provides guidelines/standards for the care of children and adolescents in acute care settings. To be used in conjunction with the *Guide to the Role Delineation of Health Services* (2002).
- Does not define levels of care but rather identifies what needs to be in place if care is being provided to children and adolescents.
- Includes a special section on guidelines for hospitals where surgery is performed, as well as a section for hospitals that admit adolescents with mental health issues.
- Includes statements about the use of inpatient beds (i.e., only if clinically appropriate and necessary), minimum staffing requirements for hospitals that admit children, integration of acute care services with primary health care and pediatric ambulatory services, ED and outpatient requirements, facilities to accommodate parents to stay with children and guidelines for transition to adult care.

NSW Department of Health. Children and Adolescents - Admission to Services Designated Level 1-3 Paediatric Medicine & Surgery. 2010. (26)

- Provides guideline to clinicians and hospital administrators re appropriate assessment and admission of children and adolescents for pediatric medicine & surgery services in hospitals designated as levels 1 – 3 in NSWs hospitals (may or may not have dedicated pediatric beds).
- Identifies standards for triage, admission, assessment, consultation, pediatric safe beds/areas, medical plan of care, length of stay and surgical admissions. Also includes equipment requirements and lists of surgical procedures and ASA classification.

NSW Department of Health. Emergency Department Services Plan. 2001. (31)

- Recommends that ED services within each of the 8 health areas be configured in a hub-and-spoke network model with one designated hub for each health area. Suggests that an area director of ED services be appointed to facilitate the coordination and management of ED services in each area health service (role was contemplated for oversight, coordination and communication rather than direct line-management).
- Each ED in NSW is assigned and one of six levels (role is based on the version of the Role Delineation of Health Services, 2000).

- o Level 1: Able to provide first aide treatment prior to moving to a higher level of service.
- o Level 2: Emergency service in small hospital. Designated assessment and treatment area. Generally deals with minor injuries and ailments.
- o Level 3: Designated nursing staff available 24/7. Some RNs have completed post-basic studies. Has 24 access to medical officer on site or available within 10 min.
- o Level 4: Can manage most emergencies. Purpose designed area. Designated Med Director with training and experience in emergency medicine. Medical officer on site 24/7.
- o Level 5: Can manage all emergencies and provide definitive care for most.
- o Level 6: Neurosurgery and cardiothoracic surgery on site. Subspecialists available on rosters. Active research program.
- For each level, identifies minimum resource levels, qualifications (physicians and nursing staff), operational structure (access to diagnostics and radiology) and back-up services as per the Australasian College for Emergency Medicine role delineation document.
- Other recommendations include:
  - o Development of a communication strategy within the networks (web-based to notify network sites of restricted access periods, patient transfers, clinical support, clinical review and educational support) and for the public (why transfer may occur following stabilization).
  - o Development of a complexity tool to address workload and staffing levels.
  - o Utilization of a minimum data set and a mechanism to allow a statewide overview of network performance.
  - o Develop common standards, guidelines and procedures and a new funding model.

NSW Department of Health. Guidelines for Networking of Paediatric Services in NSW. 2002. (29)

- Proposes continued use of a pediatric networking model with common guidelines for care accompanied by staff training and development.
- Recommends the establishment of 3 pediatric networks, each of which includes one of three specialist children's hospitals in NSW. Networks were identified through an assessment of flow patterns for paediatric inpatient care and clinical relationships. Non-inpatient and primary care service linkages with local hospitals and the children's hospitals will be mainly geographic and reflect local government and area health service boundaries.
- Coordinator appointed for each network to assist in consultation, liaison, negotiation and documentation required for the development and implementation of networks.
- Networking principles include safety, consumer participation, effectiveness, access, appropriateness and efficiency. Provides some useful examples of the application of these principles.
- Goal is to improve the quality of care available locally through support provided from the children's hospitals in terms of specialist clinical outreach services, shared treatment protocols and guidelines, staff rotation between services, professional training and development opportunities, support in times of peak demand and smoother transfer and referral of patients between services. More children accessing services locally will mean the children's hospitals can further develop specialist services for children. Clinical practice guidelines for development were identified (e.g., seizures, fever, croup).

- Process of networking extends beyond developing links between hospitals and, as a 2nd phase, will include GPs, private pediatricians, allied health, community health and primary care services, early childhood services and other government and non-government agencies with responsibility for children's health and welfare.

NSW Department of Health. Guide to the Role Delineation of Health Services Third Edition (2002) (30) & Rural Companion Guide to the Role Delineation of Health Services First Edition. 2004. (28)

- Cornerstone for health planning and guidelines in NSWs.
- Describes 8 clinical support services (pathology, pharmacy, diagnostic imaging, nuclear medicine, anesthetics, intensive care, coronary care and operating suite) and divides into levels 1 - 6.
- Describes 6 categories of core services (representing 53 major specialty areas) and divides each core service into levels 1 – 6. Categories are:
  o Emergency
  o Medical: general medicine, cardiology, dermatology, etc
  o Surgical: general surgery, burns, ENT etc
    ▪ In describing surgical specialties and anesthetics, use the ASA physical status classification of risk (1-5) for children. Describe the complexity of surgical procedures as "minor," "common and intermediate", "major" and "complex major".
  o Maternal and child: maternity, neonatal, **pediatric medicine** (p. 51-52), **pediatric surgery** (p. 53-54), family & child health
  o Integrated community & hospital services: **adolescent health, child/adolescent mental health inpatient care, child/adolescent mental health community care**, adult mental health inpatient care, adult mental health community care, **child protection services**, drug and alcohol services, health promotion, palliative care, etc.
  o Community based health services: Aboriginal health, **community health – general, community nursing**, genetics, multicultural health, oral health, sexual health services, women's health
- Identifies the minimum level of clinical support services (e.g., diagnostic imaging level 2 is required to provide level 4 palliative care services) required for each level of core service.
- Guide has been utilized for state-wide planning for specific services – emergency departments, ICUs (see below).
- Includes an automated program which can be used to reconcile current service role levels for facilities within an area health service and analyze proposed changes to facility roles for the future (program uses an access-based program).
- Rural Companion Guide is based on the Role Delineation Guide but specifies areas in which "allowances" can be made for rural facilities (e.g., access to allied health professionals via telehealth if required and not available on site).
- Several states in Australia have adopted these guidelines +/- modifications.

NSW Department of Health. Intensive Care Services Plan – Adult Services. 2001. (32)

- Very similar concepts to the Emergency Department planning document.
- Recommends the adoption of a network hub-and-spoke model and formalizing and strengthening networks across and between area health services.
- Utilizes the same 6 levels of care as per in the role delineation document (2002) (30).

NSW Department of Health. Palliative Care Role Delineation Framework. 2007. (27)

- Defines the palliative care population and identifies 3 levels of need:
  - A (most common): patients with life limiting illness whose needs can be met by primary care service
  - B: patients requiring consultation based specialist palliative care on an episodic basis (remain under the care of primary care services).
  - C (least common): patients with complex, unstable conditions requiring ongoing care. Primary care service would remain involved in care in partnership with specialist service, which would have an ongoing role in care provision.
- Describes the relationship and roles of primary care and specialist palliative care providers/services caring for patients with life-limiting illnesses.
- Classifies specialist palliative care services into 3 levels in terms of resources and capability. Each level describes and reflects the complexity of clinical activity undertaken by a service and specifies the staff profile, support services and other requirements.
- Identifies community support services that need to be available.

NSW Surgical Services Taskforce Paediatric Surgery Sub Group. Paediatric Surgery Model for Designated Area Paediatric Surgical Sites. 2009. (33)

- Recommends the use of a network model (uses the same definitions as in the 2002 role delineation document) (30).
- Identifies a model for surgery for pediatric patients, focusing on the 12 – 16 years age group.
- Goal of the model is to encourage local surgical services to undertake "common" elective & emergency surgical cases, particularly in the 12 – 16 years age group, within role delineation.
- Identifies service requirements for non-tertiary pediatric hospitals to perform "basic" surgery (access to anesthetists and surgeons with pediatric experience, appropriately trained pediatric staff (nursing and medical), appropriate radiology and pathology services, designated and staffed pediatric beds and recovery area, appropriate accommodation for parents and availability of appropriate pediatric equipment).
- Identifies potential surgeries that could be done in secondary-level pediatric facilities, depending on level of patient risk (using ASA physical status classification).
- Identifies principles to include in a protocol for transfer to a NSWs tertiary pediatric hospital if required.

NSW Department of Health. Role Delineation Levels of Emergency Medicine: Consistent with the Guide to the Role Delineation of Health Services Third Edition 2002. 2011.

- Provides current designated role delineation levels for a number of Emergency Services in NSW public hospitals.
- Hospitals are listed by geographical groupings and then a level of care assigned from 1 to 6.

2.2.2   Queensland (Australia – Brisbane & surrounding area)

Queensland Health. Clinical Services Capability Framework for Public and Licensed Private Health Facilities version 3. 2011. (38)

- Development facilitated by Queensland Health with input from an Executive Steering Committee and regular consultation with public and private stakeholders. Builds on V2.0 (2005).
- Fundamentals of the framework (Introduction section):
  o Underpins all service modules (fundamentals of the framework). Section describes the framework, parameters (scope, principles, assumptions, context and essential considerations), core components (fundamentals, service levels, service level criteria and legislative and non-legislative standards.
  o Service level criteria include service description, service requirements, workforce requirements, support service requirements and specific risk considerations.
  o Service descriptions include: type of service provided (e.g., setting and hours of service), type of patient (e.g., multiple co-morbidities), providers and subspecialties, where relevant and inter-service / inter-level relationships.
  o Proposes 6 service levels (up from 5 in V2.0):
    ▪ 1: low complex ambulatory care services.
    ▪ 2: low complex inpatient and ambulatory care services.
    ▪ 3: low to moderate complex inpatient and ambulatory care services.
    ▪ 4: moderate complex inpatient and ambulatory care services.
    ▪ 5: moderate to high complex inpatient and ambulatory care services.
    ▪ 6: High complex inpatient and ambulatory care services.
    ▪ Section for children's services and the need for child-friendly environments and facilities for children, families and carers.
- Children's services (second section):
  o Defines the ages of children for the purposes of the framework (0-18 years).
  o Describes physical environmental requirements.
  o Discusses general service requirements and legislation regulations and standards.
- Seven child-specific service modules have been developed (new to V3.0).
  o Children's anaesthetic services
  o Children's cancer services
  o Children's emergency services
  o Children's intensive care services

- o Children's medical services
- o Children's radiation oncology services
- o Children's surgical services
- o Child and youth mental health and forensic mental health services
- o Evolve therapeutic services
- o Perinatal and infant mental health services
- For each of the modules, services and service requirements are described for each service level.

Queensland Health. Strategic Policy Framework for Children's and Young People's Health 2002-2007. 2008. (39)

- Describes a policy framework for the provision of children's health services in Queensland. Provides a platform for the reorientation, integration and redesign of health services to meet the increasingly complex health needs of Queensland's children and young people.
- Describes key protective factors and key risk factors in the areas of society / culture / environment, family / care / school / neighbourhood and child / young person.
- Outlines 4 priority strategies: effective planning and implementation of integrated services, evidence-based service development and delivery, workforce development and data and information management, monitoring and evaluation.
- Includes 3 sections: Introduction, strategic directions and implementing the strategic policy framework.
- Section 2 provides a framework for reorienting and enhancing services. Emphasizes the health development approach, investing in children's and young people's health, addressing the social determinants of health and delivering a continuum of care. Utilizes a "wheel" as a visual reference (adapted from Mrazek and Haggerty 1994).

2.2.3   Victoria (Australia – Melbourne and surrounding area)

Metropolitan Health and Aged Care Services Division, Department of Human Services. Palliative Care Role Delineation Framework: Discussion Paper. 2005. (21)

- Identifies 3 levels of specialist inpatient palliative care services.
- For each level, identifies client group, services provided directly, beds/facilities, staffing, support services, staff development, education provided to others (patients, families, other professionals), research involvement, quality activities and links with other providers
- Model is based on the *Palliative Care Australia Framework* which includes the same 3 levels plus primary care providers.

2.3   United Kingdom (UK)

Department of Health. Commissioning Safe and Sustainable Specialised Paediatric Services: a Framework of Critical Inter-Dependencies. 2008. (11)

- Reviews interdependencies required to provide 23 different specialized (tertiary) pediatric services
- Uses a red, amber and green system to identify requirements for dependencies
  - Red: absolute dependency
  - Amber: relationship under some circumstances, requiring varying levels of access and contact between specialists, but not necessary co-location (differentiates 3 options within the level)
  - Green: indirect or no relationship
- Maps 23 specialties on the vertical access of a grid and the same specialties on the horizontal access using the colour coding to highlight the interdependencies on a single page.

Every Child Matters (13)

- In 2003, the UK government launched Every Child Matters.
- Every Child Matters is a broad-based strategy that has 5 aims for children: be healthy, stay safe, enjoy and achieve, make a positive contribution and achieve economic well-being.
- Each theme has a detailed framework attached whose outcomes require multi-agency partnerships working together.
- Agencies working in partnership may include children's centres, early years, schools, children's social work services, primary and secondary health services, playwork, and Child and Adolescent Mental Health services (CAMHS).
- While Every Child Matters is based on partnerships, there is no overarching "framework" that identifies the partnerships.

Department of Health UK. Getting the Right Start: National Service Framework for Children, Young People and Maternity Services -- Standard for Hospital Services. 2003. (12)

- Describes components of "child friendly" hospital.
- Includes inpatient, outpatient, short stay and day surgery care.
- Divided into 3 parts: child-centred hospital services (philosophies, policies and services are coordinated and child-centred), quality and safety of services (governance, staff training and availability of pain management, surgery, tertiary services, PICU, etc) and quality of setting and environment (child-friendly).
- Defines minimum standards essential to guarantee safety for children. Standards are applicable to any service model within the UK.
- Identifies clinical competencies within the ED, within an inpatient pediatric department, within a children's observation and assessment unit, on site at all times where an emergency pediatric service is being provided (anaesthetic and surgical competencies). Also outlines required support services, minimum workload (ED) and environment (ED, inpatient unit and pediatric assessment unit) and clinical protocols.

Royal College of Nursing. Defining Staffing Levels for Children's and Young People's Services: RCN Guidance for Clinical Professionals and Service Managers. 2003. (44)

- Provides nurse/patient ratios for neonatal, ICU and high dependency services, general children's wards and departments and specialist children's wards and departments.

Royal College of Anaesthetists. Guidance on the Provision of Paediatric Anaesthesia Services. 2010. (43)

- Provides standards for anaesthesia services for children.
- Includes staffing requirements, equipment, support services and facilities.
- Also addresses area of special requirement (ICU, day care surgery).

Royal College of Paediatrics and Child Health. Supporting Paediatric Reconfiguration: a Framework for Standards. 2008. (45)

- Defines minimum standards essential to guarantee safety for children. Standards are applicable to any service model within the UK.
- Identifies clinical competencies within the ED, within an inpatient pediatric department, within a children's observation and assessment unit, on site at all times where an emergency pediatric service is being provided (anaesthetic and surgical competencies). Also outlines required support services, minimum workload (ED) and environment (ED, inpatient unit and pediatric assessment unit) and clinical protocols.

Royal College of Surgeons of England. Surgery for Children: Delivering a First Class Service. 2007. (46)

- Numbers of surgical procedures done in district hospitals has been decreasing steadily while those in tertiary centers have been increasing.
- Provides standards for working time, facilities, staffing, lead clinicians, audits, consent, child protection, resuscitation and life support training, sedation, pain management and transition care.
- Models of care:
  - Supra-regional centres: care of unusual and complex conditions.
  - Regional centres: surgical services support by specialist facilities including pediatrics, anaesthesia, critical care, radiology, pathology and other diagnostic services.
  - District general hospitals: care of minor/routine surgery and outpatient facilities for specialized conditions.
  - Single surgical specialty hospitals: specialist surgical units (e.g., neurosurgery) located within adult centres that do not have paediatric cover on site. Seen as outdated.
  - Independent sector hospitals and treatment centres (contracted services).
- Standards within specific areas:

- o Emergency care: Emergency surgery should only take place in hospitals that have inpatient children's facilities and provide regular elective surgical care.
- o Day case surgery: provides standards for hospitals that do and do not have inpatient pediatrics.
- o Pediatric anesthesia: At all times anesthesia in children should be undertaken or supervised by consultants who have undergone appropriate training in paediatric anesthesia. Children with significant medical problems, those undergoing complex procedures, neonates and small infants should be referred to specialist units or tertiary centres.
- o Pediatric critical care: available as appropriate for the type of surgery.
- o Children with multiple disabilities and special needs: Best managed by multidisciplinary team. Surgery should generally be undertaken in specialist centres.
- o Individual specialties: workload, provision of care, organization of care, education and training and recommendations are provided for each of the pediatric surgery specialties.

2.3.1 Scotland

Scottish Executive. Co-ordinated, Integrated and Fit for Purpose: a Delivery Framework for Adult Rehabilitation in Scotland. 2007. (46)

- Levels of management in the rehabilitation process:
  - o Self management: individuals take responsibility for their own health, seek prompt treatment for minor ailments and manage long term conditions appropriately.
  - o Condition management: managed through multi-disciplinary primary care teams, with specialist rehabilitation as appropriate; for people with less-complex needs
  - o Case management: for the small number of people with the most complex needs; often offered in the form of community or specialist nursing, but also capable of being provided by a variety of multi-disciplinary, multi-agency team members. Most at risk for hospitalization.
- Service provision can be viewed on a continuum from self management (population) to locality based rehabilitation (+maintenance) teams (work in homes, day hospitals, community hospitals, specialist outreach services, sheltered housing, etc) and specialist rehabilitation teams (case management).

Scottish Executive. Emergency Care Framework for Children and Young People in Scotland. 2006. (48)

- Identifies the different levels of emergency care, staff required to support this care and the nature of services delivered at each level (e.g., pediatric ward, surgery, CT, etc).
- 4 levels of care:
  1. 1st contact for an acutely ill/injured child, including primary care (GP etc), NHS 24 (telephone line), minor injuries facilities, out-of-hours services and Scottish Ambulance Service
  2. General hospital with an ED but without a pediatric inpatient unit. May have facilities for assessing and observing children over a period of time prior to making a decision about

whether to discharge or not. Children who need to be admitted are transferred to the local inpatient unit at another hospital.

3. General hospital with a pediatric in-patient unit on site.
4. Specialist children's hospitals or units which provide pediatric ICU and/or high dependency care, pediatric surgery and a range of specialist services and advice, all of which are available on site.

Scottish Executive. The Mental Health of Children and Young People: a Framework for Promotion, Prevention and Care. 2005. (49)

- Framework to support local planning; addresses the continuum of mental health, including promotion, prevention, support, treatment and care (graphic is in the form of a wheel).
- Provides principles (integrated and holistic approach, partnerships, transitions, etc.
- Identifies 4 tiers of services:
  o Tier 1: A primary level of service provided within universal services and including mental health promotion, general advice and identification of mental health problems early in their development.
  o Tier 2: A level of service provided by uniprofessional groups which relate to each other through a network rather than a team. Functions include assessment, care and treatment for children and young people, and consultation and advice to professionals in Tier 1.
  o Tier 3: A specialized service for more severe, complex or persistent mental health problems. Assessment and treatment is the core function.
  o Tier 4: Essential tertiary level services such as day units, highly specialised outpatient teams and inpatient units. Assessment and treatment is the core function.

2.4   United States (US)

Taras HL, American Academy of Pediatrics Committee on School Health. School-based mental health services. Pediatrics. 2004;113(6):1839-1845. (50)

- Describes school-based mental health services.
- Proposes 3 tiers of services:
  1. Systems for positive development & systems of prevention (preventive MH programs and services). Targets all children in settings. Services are designed to reduce risk factors and build resilience.
  2. Systems of early intervention (early-after-onset). Targeted MH services designed to assist students who have one or more mental health needs but who function well enough to socialize, etc. Group or individual therapy services.
  3. Systems of care (treatment of severe and chronic problems). Targets severe MH diagnosis and symptoms. Services with a multidisciplinary team including special education services, individual and family therapy, pharmacotherapy and school and agency coordination.

Rosenberg DI, Moss MM, American Academy of Pediatrics Section on Critical Care, American Academy of Pediatrics Committee on Hospital Care. Guidelines and levels of care for pediatric intensive care units. Pediatrics. 2004;114(4):1114-1125. (41)

- Defines 2 levels of ICU care: Level I and II.
- For each level of care, describes the scope of services, organizational and administrative structure, hospital facilities and services, personnel, drugs, equipment, quality monitoring, training and continuing education.

2.5   Summary of Associate Literature and Jurisdictional Information

Bates et al. NHS Health Advisory Service. Together We Stand: the Commissioning, Role and Management of Child and Adolescent Mental Health Services. 1995. (2)

- Book (22 chapters) discusses approaches to delivering child and adolescent mental health services.
- Proposes 4 tiers and for each tier, identifies the purpose, expectations, core tasks and a case vignette:
    1. Primary or direct contract services (GPs, social workers, voluntary sector workers, school staff, police officers, school medical officers, schools nurses, health visitors, etc).
    2. Interventions offered by individual staff or specialist child and adolescent MH services (individual specialist MH workers such as community psychiatric nurses, psychiatrists, clinical psychologists, social workers).
    3. Services offered by teams of staff from specialist child and adolescent MH services (e.g., specialist assessment teams, family therapy teams, day unit teams).
    4. Very specialized interventions and care (highly specific, resource intensive such as inpatient psychiatry units, highly specialized outpatient consultation services).

Committee on Prevention of Mental Disorders, Institute of Medicine. Reducing Risks for Mental Disorders: Frontiers for Preventive Intervention Research. 1994. (10)

- Paper commissioned to raise the profile of mental disorders and efforts to prevent them in the United States.
- Discusses the status of current research on the prevention of mental illness and promotion of mental health throughout the life span. Also discusses government presence in the prevention of mental disorders, from research to policy and services. Finally, proposes a "capacity building" plan and cost estimates for the development of personnel and resources to promote research in mental disorder prevention.
- Includes a framework for the prevention of mental disorders (page 23). Framework focuses on the mental health intervention spectrum of prevention (universal, selective and indicated), treatment (case identification, standard treatment for known disorders) and maintenance

(compliance with long-term treatment and after-care). Graphically represented by a semi-circle. Set of common definitions proposed for each.

Halfon N, DuPlessis H, Inkelas M. Transforming the U.S. child health system. Health Aff (Millwood). 2007; 26(2):315-330. (16)

- Presents a vision and rationale for reform of the US child health system.
- Approaches child health policy reform from a long-term, system transformation perspective.
- Compares US health system with other countries. Shows the US underperforms. System does not address persistent and growing gaps in access to and quality of health care services.
- Proposes a new logic model which is based on the Institute of Medicine's conceptualization of child health. Model offers a more comprehensive and holistic approach to health including prevention, health promotion and the development of health potential as core system components. Organizes care around more developmentally appropriate time frames. Targets long-term functional capacity rather than short-term disease outcomes. Facilitates vertical, horizontal and longitudinal integration.
- Policy steps to achieve transformation include creating a child health outcomes framework, promoting leadership from key sectors and stakeholders and plan and spread innovative system change strategies.

Halfon N, Larson K, Russ S. Why social determinants?. Healthc Q. 2010;14(Spec No):8-20. (17)
- Defines social determinants and discusses the strength of the relationship between social determinants and health, particularly in children.
- Reviews the policy implications of the relationship. Discusses the utility of both direct social policy initiatives (designed to eliminate poverty and inequality) and indirect initiatives (focus on disrupting pathways between social risk and poor health outcomes).
- Emphasizes that improvements will require much more than government alone. Parents and professionals will need to work with government from the ground up, raising public awareness about social determinants of health and implementing cross-sector place-based initiatives.

Hollander MJ, Prince MJ. Organizing healthcare delivery systems for persons with ongoing care needs and their families: a best practices framework. Healthc Q. 2008;11(1):44-54. (18)

- Studied systems of care delivery for 4 populations with ongoing care needs – elderly, persons with disabilities, persons with chronic mental health conditions and children with special needs.
- Proposed a best practice framework for organizing systems of continuing/community care services to these populations. Components included:
  - Administrative best practices: clear statement of philosophy, coordinated administrative structure, single funding envelope, integrated information system and incentive system for evidence-based management.
  - Clinical best practices: single or coordinated entry system, standardized, system-level assessment and care authorization, client classification system, case management and involvement of clients and families.

- o Linkage mechanisms across the four population groups: administrative integration, boundary-spanning linkage mechanisms and co-location of staff.
  - o Linkages with hospitals: purchase of services for specialty care, hospital in reach approach, physician consultants in the community, greater medical integration of care services, boundary-spanning linkage mechanisms and a mandate for coordination.
  - o Linkages with primary health care: boundary spanning linkage mechanism, co-location of staff, review of physician remuneration and mixed models of continuing/community care and primary health care.
  - o Linkages with other social and human services: purchase of service for specialty services, boundary spanning linkage mechanisms and high-level cross sectoral committees.
- Proposed a 3 level service delivery system: primary (home and community based hospital services), secondary (residential services) and tertiary/quaternary (acute care hospital services).

Klassen A, Miller A, Anderson N, Shen J, Schiariti V, O'Donnell M. Performance measurement and improvement frameworks in health, education and social services systems: a systematic review. Int J Qual Health Care. 2010;22(1):44-69. (19)

- Systematic review for performance measurement and improvement frameworks within and across health, education and social service systems.
- 111 frameworks identified. Most were developed for the health sector.
- Grouped quality improvement concepts into collaboration, learning and innovation, management perspective, service provision and outcomes. Several sub-concepts noted within the concepts.
- Uniquely identified the "level" (e.g. team, agency, province/country) of the system at which the quality concepts were measured.
- Useful in developing performance measures and improvement frameworks within or across health, social service and education sectors across the system levels.

Last JM, ed. A Dictionary of Epidemiology. 4th ed. New York: Oxford University Press; 2001.(20)

- Book which provides definitions of many common epidemiological terms, including primordial, primary, secondary and tertiary prevention.
- Definitions referenced in A Framework for Core Functions in Public Health (BC).

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