

Chapter 2

Models of Primary Care and Appraisal Frameworks

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Abstract

The Models of Child Health Appraised (MOCHA) project identified the different models of primary care that exist for children, examined the particular attributes that might be different from those directed at adults and considered how these models might be appraised. The project took the multiple and interrelated dimensions of primary care and simplified them into a conceptual framework for appraisal. A general description of the models in existence in all 30 countries of the EU and EEA countries, focusing on lead practitioner, financial and regulatory and service provision classifications, was created. We then used the WHO ‘building blocks’ for high-performing health systems as a starting point for identifying a good system for children. The building blocks encompass safe and good quality services from an educated and empowered workforce, providing good data systems, access to all necessary medical products, prevention and treatments, and a service that is adequately financed and well led. An extensive search of the literature failed to identify a suitable appraisal framework for MOCHA, because none of the frameworks focused on child primary care in its own right. This led the research team to devise an alternative conceptualisation, at the heart of which is the core theme of child centricity and ecology, and the need to focus on delivery to the child through the life course. The MOCHA model also focuses on the primary care team and the societal and environmental context of the primary care system.

Keywords: Child; primary care; appraisal framework; conceptual framework; health system; models of care



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Introduction

The primary care values to achieve health, for all require health systems that ‘Put people at the centre of health care’. (World Health Organization, 2008a)

Thirty years after the Alma Ata Declaration (World Health Organization, 1978), the World Health Organization Report: Primary Care More than Ever (2008) highlights the increasing emphasis on person-centred care, as health systems adapt to rapidly changing social circumstances and increasing public expectations. It is in this context, and a decade later, that the Models of Child Health Appraised (MOCHA) project has attempted to appraise the current primary care systems for children and placing them very much at the centre of health care (see Chapter 3).

Children are not mini adults. Their needs for primary care services are specific in a number of ways: from clinical knowledge and skills required to treat them to means of access and types of advocacy. The MOCHA project set out to identify which models of primary care exist for children, whether there are particular attributes which might be different from those directed at adults and how might these models be appraised. To achieve this, it is essential to first be clear about what is meant by a ‘model’. In the MOCHA project, we have defined a model as a simplified description of the primary care system, but one that is comprehensive enough to describe the complexity and coordination of its components. Pragmatically, the model allows an overall view of a system, and enables comparison between systems. Thus we have taken the multiple and interrelated dimensions of primary care and attempted to simplify them into a conceptual framework for appraisal in a number of attributes. Ultimately, in the same way as a model farm operates, in which exemplars are produced to maximise crop or animal yields, we set out to identify a validated effective and efficient model or model components which can be assembled in such a way as to lead to optimum health outcomes (Wade-Martins, 2002).

With this meaning in mind, a summary of the findings of an extensive review of the literature on primary care models with particular focus on the child and family led to building on the work of researchers such as Starfield, who was among the first pioneers to research what constitutes a ‘good’ primary care system (Starfield, Shi, & Macinko, 2005). Thus, we describe the model types and apply this to practical application of appraisal methodologies in the MOCHA project.

Model Types

The many different forms of primary child health care provision are described in Chapter 1.

Given the finite project resources and the greatest and most strategic foci of primary care activity for children, the MOCHA project has concentrated primarily on the general practice or family practice (seeing all ages but optionally with specialisation), primary care paediatricians (seeing only child patients), community nursing with their own child caseload, practice-based nurses working

in tandem with a primary care and school health services. The other contributors to primary care received some attention in our scientific survey questionnaires analysing service patterns.

A MOCHA literature review (Alexander & Blair, 2016) identified a number of models used to classify primary care systems. In summary, these included one or more axes: European paediatric professional associations and country agent classifications of lead practitioner in terms of general practitioner (GP), primary care paediatrician or mixed systems (Ehrich, Namazova-Baranova, & Pettoello-Mantovani, 2016; Katz, Rubino, Collier, Rosen, & Ehrich, 2002; van Esso et al., 2010); the system of regulation, financing and service provision; and separately State, health insurance or private provider as ‘actors’ (Böhm, Schmid, Götze, Landwehr, & Rothgang, 2013), or a combination of state or professional control (hierarchy) and gatekeeping (Bourgueil, Marek, & Mousques, 2009).

Lead Practitioner Classifications

The lead clinician has often been the key focal point of a model and the classification by which it has been defined. The clinician is the point of entry into the primary care system in most, but not all, models. The clinician acts as a medical advocate for the patient and may coordinate further care (Kringos, Boerma, Hutchinson, & Saltman, 2015a, 2015b). This is a somewhat simplistic, but pragmatic means of describing a model of primary care. The MOCHA project has echoed previous research by describing models by means of three types of lead clinician (see Chapter 13):

- (1) a paediatrician-led model;
- (2) a GP/Family doctor-led model; and
- (3) a mixed model.

Within a country, there may be transition from one type to another, for example from paediatrician-led services to a GP-led service at a certain point in childhood (Alexander & Blair, 2016), and there is very little evidence to show outcomes related to the type of model or variation in outcomes within a country’s model (Ehrich et al., 2016; Katz et al., 2002; van Esso et al., 2010).

Financial Classifications

In Europe, countries are generally divided into tax-based national health systems and social insurance systems (Saltman, Rico, & Boerma, 2006), but the manifestations of each funding system by societal and political decisions leads to a diversity in models. Funding is a very important factor in shaping a health care system, but it is unable to explain the diversity in Europe on its own (see Chapters 8 and 9). The Expert Panel on Effective Ways of Investing in Health (European Commission, 2018) recommends that all EU Member States have adequate financing for primary care, to guarantee a certain level of population health and well-being. Any system must have a degree of financial stability to function properly

and to remain accessible and effective (European Commission, 2018). In most countries, there is free or almost free access to primary care for children, but there are also hidden costs that can result in inequity of provision (see Chapters 9 and 15), which is perhaps exacerbated by the recent financial crises in Europe.

Regulatory, Financial and Service Provision Classifications

Another means of classifying the diversity of models of primary health care is on the type of service offered and how it is organised. These have been described by Kringos et al. (2015a, 2015b) among others in three model subtypes:

- (1) The public hierarchical normative model – this is where primary care is central to the health system and is run by the state rather than by health professionals. In these systems, health care facilities provide voluntary coverage and are governed by decentralised authorities or regions, and GPs or primary care paediatricians are usually salaried. Examples of countries with this type of system are Finland, Lithuania, Portugal, Spain and Sweden.
- (2) The professional hierarchical gatekeeper model – in these systems, GPs are the cornerstone of primary care and usually hold a gatekeeper role to other services. The primary care professionals are accountable for the management of resources used for health care. Remuneration of professionals is mixed between fee-for-service, self-employed and salaried. Examples of this system are Denmark, Estonia, Poland, the Netherlands, Slovenia and the United Kingdom.
- (3) The free professional non-hierarchical model – health professionals organise care independently, without strong regulation from the state or insurance funding. This model emphasises patient and professional freedom. There is an absence of a list system or a gatekeeping role. Primary care professionals work alongside each other, but not necessarily in collaborative teams. Countries with this system include Austria, Belgium, France, Germany and Switzerland (see Chapter 9). Not all countries fit neatly into these classification systems, however. For example, Italy has a combination of a public hierarchical normative model and a professional hierarchical gatekeeper model. Other research has extended these classifications further, based on contextual factors including funding, clinic types and community settings. These are discussed in detail in Alexander and Blair (2016).

In the MOCHA project, a combination of our own country-based studies with reference sources and literature, we were able to map the different models in the EU and EEA countries. Table 2.1 was used to highlight the different classification types described above and to support the Work Package scientists in their task of appraising the model characteristics against a variety of outcomes.

A number of additions were made to the Table 2.1 as the project progressed; including workforce training, presence of multidisciplinary teams, school and adolescent health services, amount of funding, background factors such as GDP and PPP and types of record systems.

Table 2.1. Mapping of models of provision in MOCHA countries.

	Practitioner at First Point of Contact*	Lead Practitioner – Clinical Responsibility			Financial Organisation		Referral/Access System to Secondary Care	
		From CA Questions and Bourgueil et al. (2009)	From: WP1 CA Questions	From van Esso et al. (2010)	From Ehrich et al. (2016)	MOCHA Agreed Primary Care Lead Practitioner		From Relevant HIT Documents (European Observatory on Health Systems & Policies, 2018)
Austria	GP or paediatrician	GP and paediatrician	Combined – Both	'Pediatric primary health care in Austria involves the services of general pediatricians and general practitioners' http://www.jpeds.com/article/S0022-3476(16)30142-1/fulltext	Both (GP/ paediatrician)	Compulsory health insurance, children up to age 18, or 21 if unemployed, 26 if in full-time education are insured with close relatives (e.g. parent)	Social health insurance	Open access
Belgium	Family doctor or first line paediatrician	Family doctor or first line paediatrician	Combined		Combined (GP/ paediatrician)	Mixture of state social security and private health insurance. Fee for service	Etatist social health insurance	Open access
Bulgaria	GP or paediatrician	GP for those with health insurance. Pre-2000 was mandatory for community paed for children up to 18; younger GPs only have nine weeks paed training.	GP Led		GP	State health insurance and voluntary health insurance		Primary care is gatekeeper to other health services GP has a limited number of referrals per year. 70% use primary care as entry point to system

Table 2.1. (Continued)

	Practitioner at First Point of Contact*	Lead Practitioner – Clinical Responsibility			Financial Organisation		Referral/Access System to Secondary Care	
		From CA Questions and Bourgueil et al. (2009)	From: WP1 CA Questions	From van Esso et al. (2010)	From Ehrlich et al. (2016)	MOCHA Agreed Primary Care Lead Practitioner		From Relevant HIT Documents (European Observatory on Health Systems & Policies, 2018)
Croatia	GP or paediatrician	Primary care paediatrician or GP		'Paediatricians and school medicine specialists provide comprehensive preventive health care for both preschool and school-aged children' http://www.jpeds.com/article/S0022-3476(16)30143-3/fulltext	Primary care paediatrician	Mandatory health insurance fund and private insurance for additional services. Children are free	Etatist social health system	Primary care is mainly gatekeeper to other health services
Cyprus	Paediatrician	Private paediatrician or public hospital paed	Paediatrician led		Primary care paediatrician	Two parallel systems, the state and private sector. Since the economic crisis more uptake of public sector. 5–10% have private health insurance	Government and private health system	Open access
Czech Republic	Paediatrician	'Registering paediatrician' Accessed via triage nurse	Paediatrician led However, this may be misleading. The Czech Republic has a 'specialty' called PLDD 'praktický lékař pro děti a	'Does not involve general practitioners (GPs) in primary child health care. Indeed, all parents in the Czech Republic can choose their own paediatrician at the	Primary care paediatrician	90% have health insurance via public health insurance companies 'so-called sickness funds': For people who are not employed (including children, pensioned,	Etatist social health insurance	Access to secondary care is open but at the same time a referral system is functional

				dorost' 'General Practitioner for Children and Adolescents' who, when selected by parents becomes the 'Registering pediatrician' for the child	level of primary care'. www.jpeds.com/article/S0022-3476(16)30144-5/fulltext		job-less), the fund receives monthly payments from the state		
Denmark			GP	'child primary care is taken care of by general practitioners who have six months of pediatric training as part of their specialty training and, therefore, are qualified to work as gatekeepers for the secondary health care at the hospitals' http://www.jpeds.com/article/S0022-3476(16)30145-7/fulltext	Combined GP/health nurse	State funded, but voluntary health insurance as well Overall tax financed – voluntary health insurance exist but is very seldom relevant in this situation because the access to health nurse/GP is not a problem	National health service	Primary care is gatekeeper to other health services. For school children, the health nurse attached to the school or the school dentist service (which is more constant present) may be the primary contact and may, in many cases, solve the minor problems	
Estonia	GP	GP	GP	'For the last 20 years, family doctors have been responsible for the primary care of children. Paediatric subspecialists work mainly in 2 children's hospitals' http://www.jpeds.com/article/S0022-3476(16)30146-9/fulltext	GP	Estonian health insurance fund (mandatory) covers 95% of population	Etatist social health insurance	Primary care is <i>partial</i> gatekeeper to other health services Some can be contacted directly	

Table 2.1. (Continued)

	Practitioner at First Point of Contact*	Lead Practitioner – Clinical Responsibility			Financial Organisation		Referral/Access System to Secondary Care	
		From CA Questions and Bourgueil et al. (2009)	From: WP1 CA Questions	From van Esso et al. (2010)	From Ehrich et al. (2016)	MOCHA Agreed Primary Care Lead Practitioner	From Relevant HIT Documents (European Observatory on Health Systems & Policies, 2018)	OECD Classification From Böhm et al. (2013)
Finland	Nurse in health centres (public health nurses, nurses and midwives have a limited right to prescribe, for children less than 12 years only)	GP	GP		Combined other (nurse/GP/paed)	Municipality financed	National health service	Primary care is gatekeeper to other health services Nurse acts as gatekeeper to GP
France	GP or paediatrician	Family physician who is either a paediatrician or a GP The direct access to a specialist usually involves an extra cost for the patients, except for paediatricians (along with gynaecologist ophthalmologist, psychiatrist)	Combined		Combined other (nurse/GP/paed) Nurses are generally supervised by doctors, except in a few institutions (PMI-Maternal and Infant Protection, 'crèches', school) where they can have a role of screening and orientation	Social insurance, but strong state influence on health	Etatist social health insurance	PC has a <i>Semi-gatekeeping</i> functioning There are incentives to use primary care as gatekeeper But the scarcity of liberal doctors, especially in large cities, makes direct use of hospital emergencies specifically paediatric very frequent, and without financial consequences

Germany	Paediatrician	Paediatrician	Combined		Primary care paediatrician	Mandatory health insurance	Social health insurance	Open access
Greece	Paediatrician or GP	GP or paediatrician chosen from insurance co. list. Usually paediatrician up to 18 years old	Paediatrician led		Primary care paediatrician	Economic crisis severe in Greece. NHS and social insurance systems co-exist		Primary care is gatekeeper to other health services
Hungary			Combined		Combined (GP/ paediatrician)	Health insurance fund	Etatist social health insurance	Primary care is partial (but more or less acts as the) gatekeeper to other health services
Iceland	GP or paediatrician	One family doctor from a health care centre or private paediatrician	Combined		GP	Health insurance covers all who have lived in Iceland for six months or more	National health service	Partial gatekeeping Open access so far, no user charges for children in PHC but minor costs with private consultations. After 1 February 2017, it is to become a referral system with the GP as lead practitioner and continued low cost for specialist consultation; if not GP referral to specialist, increased costs for families
Ireland	GP	GP	GP	GP	GP	Tax funded state health system with extra health insurance funding Policy is currently changing, with phased introduction of free GP care for children based on	National health insurance	Primary care is gatekeeper to other health services

There is free access to acute hospital care, but not for primary care, for all children. About 40% of the

Table 2.1. (Continued)

	Practitioner at First Point of Contact*	Lead Practitioner – Clinical Responsibility			Financial Organisation		Referral/Access System to Secondary Care	
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Italy	Paediatrician or GP	<6 have paediatrician (or GP, only if no paed locally available)	Combined	‘Italian pediatricians related to the Public Health Care System work in their own private offices, providing primary care of patients from birth to 14 years of age (to 16 for some	Combined (GP/ paediatrician)	government reimbursement of general practitioners. From 2015, all children under six years receive free primary health care if their parents register with a GP participating in the national scheme. Also free GP care for children whose families do not meet an income threshold or children with certain long-term conditions	National health insurance	Primary care is gatekeeper to other health services

				cases of chronic diseases) [...] parents can choose between a paediatrician and a GP for their children who are between 6 and 14 years of age".				
		6–14 have paediatrician or GP		http://www.jpeds.com/article/S0022-3476(16)30151-2/fulltext6				
		Max 800 children per paediatrician (in several areas, 1,000–1,200)						
Latvia	GP	GP/family doctor or a paediatrician	GP		GP	<p>The financial system the same in 2016. Resources mainly come through general taxation, but out of pocket payment (OOP) are as well, like private voluntary insurance or for services with a long waiting time or services not covered by state budget and provided by private doctors. National Health service (HHS) under the Ministry of Health acts a pooler of health funds and the purchaser of service. Service providers may be public or private. In primary care, predominantly all GP are private, but secondary care providers predominantly are public</p>	<p>Between national health service and national health insurance system</p> <p>The Latvian HC system is between – in inpatient care for children, state gives money and majority of providers are state hospitals, but in outpatient care (primary care), money comes from state, but providers (GP) are private</p>	<p>Primary care is gatekeeper to other health services</p> <p>But once referred can choose specialist</p>

Table 2.1. (Continued)

	Practitioner at First Point of Contact*		Lead Practitioner – Clinical Responsibility			Financial Organisation		Referral/Access System to Secondary Care
	From CA Questions and Bourgueil et al. (2009)	From: WP1 CA Questions	From van Esso et al. (2010)	From Ehrlich et al. (2016)	MOCHA Agreed Primary Care Lead Practitioner	From Relevant HIT Documents (European Observatory on Health Systems & Policies, 2018)	OECD Classification From Böhm et al. (2013)	From Relevant HIT Documents/Country Agent Comments
Lithuania	GP or paediatrician	Family doctor/GP or paediatrician	Combined		Combined (GP/paed)	National health insurance fund	National health service	Primary care is gatekeeper to other health services (developing)
Luxembourg	Paediatrician or GP	Family doctor or paediatrician	Combined		Combined (GP/paed)	Three company insurance schemes	Social health insurance	Open access
Malta	GP	Family doctor (private) or walk in community health centre			GP	Public – free; private care accounts for two-thirds of primary care workload		Open access
Netherlands	GP	GP (triaged by nurse)	GP	GP ‘The GPs treat almost all uncomplicated health problems; as a consequence, Dutch paediatricians see few common child health problems’. http://www.jpeds.com/article/S0022-3476(16)30153-6/fulltext	GP Footnote: preventive care in children has a separate lead; the preventive child physician		Etatist social health insurance	Primary care is gatekeeper to other health services
Norway	GP	GP	GP		Combined (GP/paed) Paediatrician or GP at the municipal health care centres/clinics see children at regular periods, have	Taxes and grants Primary care is financed from municipal taxes, block grants from the central government	National health service	Primary care is gatekeeper to other health services

				an important public health role (and screening vaccination), but GP are most important with acute illness or concerns	and earmarked grants for specific purposes. A major source of financing of primary care is also the NIS (through fee-for-service payments and reimbursement of user fees). Reference: Health in Transition: Norway 2013		
Poland	GP/ paediatrician	<p>A new law from 27 October 2017 states that the Primary health physician has to be: (1) specialist in the field of family medicine or (2) during the specialised training in the field of family medicine or (3) specialist in the field of general medicine or (4) specialist in paediatrics or (5) physician with specialist title in the field of internal medicine (has no right to take care of children)</p> <p>In Poland, there is no longer training in general medicine; this has been replaced by family medicine specialisation</p> <p>This change is in transition and is the consequence of the newly adopted (November 2017) Primary Health Care Act. Law: http://www.dziennikustaw.gov.pl/DU/2017/2217</p>	GP	<p>Combined (GP/paed) This is in accordance with the currently binding legislation the primary health care might be provided by both (1) the medical doctor specialised in family medicine or general medicine and (2) medical doctor specialised in paediatrics</p>	<p>The vast majority is from public universal health insurance; voluntary health insurance limited role</p>	Etatist social health insurance	Primary care is gatekeeper to other health services
Portugal	GP		GP				

Table 2.1. (Continued)

Practitioner at First Point of Contact*	Lead Practitioner – Clinical Responsibility				Financial Organisation		Referral/Access System to Secondary Care	
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Romania	Family doctor (the function is called family doctor, and the training is general practitioner)	Family doctor		Mixed (GP and paediatrician) mostly offered by general practitioners (GPs) (approximately 70% of patients) or by paediatricians (caring for approximately 30% of children). There are an estimated number of children that are followed by both GPs and paediatricians. http://www.jpeds.com/article/S0022-3476(16)30154-8/fulltext	Combined (GP/ paediatrician)		National health service	Primary care is gatekeeper to other health services
				GP	State health insurance system, based on individual contribution of insured adults. Primary care is a mix of funded and fee-for-service care. All children have free	Etatist social health insurance (the state holds the regulatory power, grants privileges for the financing and provision of health services and allows private health services at all levels)	Mixed access. As there are many private health services for adults and children where anybody has access if they pay, we can call it open access; however, the primary health care (family	

					health care at all levels		doctors) acts as gate keeper for all free health care services and even some of the specialised treatments
Slovenia	Paediatrician (family doctor if paediatrician is not available locally)	Paediatrician	<p>'Physicians working with children and adolescents in primary level have a 5-year specialisation in paediatrics'.</p> <p>General practitioners (GPs) and family doctors provide care for 1.5% of children of 0–6 years of age and 7.7% of children of 7–18 years of age</p> <p>http://www.jpeds.com/article/S0022-3476(16)30160-3/fulltext</p>	Primary care paediatrician	<p>Mandatory health insurance, private insurance becoming more common</p> <p>Children under 18 years of age, students under 26 years of age are entitled to the health benefits covered under compulsory insurance scheme</p> <p>Children under 18 years of age, students under 26 years of age are exempt from co-payments and therefore do not need to pay voluntary health insurance</p>	<p>Etatist social health system</p> <p>However: Slovenia stands out as a special case. Slovenia is characterised by universal coverage, financing through earmarked taxes, a purchaser–provider split, public hospitals, and private or mixed delivery in the outpatient sector</p> <p>The state still provides most of the health care services with own facilities while funding is delegated to a social health insurance scheme</p> <p>Social-based mixed type</p> <p>Slovenia challenges theoretical assumptions about the specifications of dimensions in health</p>	<p>Primary care is gatekeeper to other health services</p> <p>Primary paediatricians are holders of lists of patients as patients (parents for their children) are entitled to select their own/ their child's personal physician</p> <p>Primary paediatricians have the role of gatekeepers to secondary and tertiary health care level</p> <p>But patient can choose specialist once referred</p>

Table 2.1. (Continued)

	Practitioner at First Point of Contact*	Lead Practitioner – Clinical Responsibility				Financial Organisation		Referral/Access System to Secondary Care
		From CA Questions and Bourgueil et al. (2009)	From: WP1 CA Questions	From van Esso et al. (2010)	From Ehrlich et al. (2016)	MOCHA Agreed Primary Care Lead Practitioner	From Relevant HIT Documents (European Observatory on Health Systems & Policies, 2018)	OECD Classification From Böhm et al. (2013)
Spain	Paediatrician	Primary care paediatrician	Paediatrics-based system	Primary care paediatrician Primary paediatric care is provided by employed paediatricians in the primary care centres public network	Primary care paediatrician	National health service/Primary care services funded through general taxation	care through the combination of state-led provision with societal financing and regulation. http://edoc.vifapol.de/opus/volltexte/2012/4221/pdf/AP_165_2012.pdf	Primary health care is gatekeeper to other NHS services/health care levels
Sweden	Nurse or doctor in health centres (nurses can prescribe)	Primary care for children in Sweden is divided in two parts: nurse-led preventive services and GP-led curative services Nurse-led preventive services are based in child health centres – nurses consult a team of consultants (e.g. GPs or paediatricians) as necessary	GP	Within the primary care sector, most children receive care from family physicians Irrespective of registration, however, primary care rarely has a formal gatekeeping role and, thus, patients are free to contact specialists directly	GP	Health services in Sweden are run by 21 county councils using funds from national taxation	National health service	Open access (PC has guiding role) The positioning of the paediatricians vary somewhat between counties. In Stockholm county (about 30% of the Swedish population), a referral is not needed to see a paediatrician in outpatient clinics, but in most counties, a referral from a GP is

		Curative primary care is built around GPs in primary care health centres, supported by nursing staff		http://www.jpeds.com/article/S0022-3476(16)30161-5/fulltext				needed to see a paediatrician and he/she only work in hospitals. GP referral is necessary for most secondary care, but child psychiatric services is quite often, but not always open access
United Kingdom	Nurse or doctor in PC group practice (nurses can prescribe)	GP as a named accountable professional	GP	GPs are the usual first port of call if a child is unwell, acting as gatekeepers for further referrals to other specialists. Children are immunised either in primary care or in school. http://www.jpeds.com/article/S0022-3476(16)30164-0/fulltext	GP	Tax-based national health system. Some differences in funding arrangements in the four devolved countries such as England/Wales/Scotland and Northern Ireland	National Health Service	Primary care is gatekeeper to other health services

Source: Blair, Rigby, & Alexander (2017).

Identifying Appraisal Frameworks

Having described the model components and their variations across the 30 countries, the next and central MOCHA project challenge was how to appraise the various combinations. We used the World Health Organization 'building blocks' (World Health Organization, 2010) for high-performing health systems which might act as useful starting point when looking at primary care for children to try to establish what makes a good system and from which perspective. The building blocks are as follows:

- Good health services are those which deliver effective, safe, quality personal and non-personal health interventions to those that need them, when and where needed, with minimum waste of resources.
- A well-performing health workforce is one that works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances (i.e. there are sufficient staff, fairly distributed; they are competent, responsive and productive).
- A well-functioning health information system is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health system performance and health status.
- A well-functioning health system ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness and their scientifically sound and cost-effective use.
- A good health financing system raises adequate funds for health, in ways that ensure people can use needed services and are protected from financial catastrophe or impoverishment associated with having to pay for them. It provides incentives for providers and users to be efficient.
- Leadership and governance involve ensuring strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system design and accountability.

Specifically for primary care, [Starfield et al. \(2005\)](#) identified six mechanisms, alone and in combination which may account for the beneficial impact of primary care on population health:

- (1) greater access to needed services;
- (2) better quality of care;
- (3) a greater focus on prevention;
- (4) early management of health problems;
- (5) the cumulative effect of the main primary care delivery characteristics (first-contact access for each new need, long-term person (not disease)-focused care, comprehensive care for most health needs and coordinated care); and
- (6) the role of primary care in reducing unnecessary and potentially harmful specialist care.

Appraisal of the models of primary care for children and young people is considered through a number of different lenses. These include effectiveness or health gain, acceptability against child, family and societal expectations and economic efficiency.

To identify a suitable appraisal framework for MOCHA, we carried out a detailed literature review of the conceptual frameworks that could be applied. This work identified 13 specific frameworks that focused on the overall health system and eight specifically on primary care (Sampaio & Blair, 2018). No published literature was found to specifically focus on primary child health care in its own right. This reinforces our overall finding that despite the importance of child health, it is an inadequately studied field of health care (see Chapters 6 and 7). The 13 frameworks have been used at national, international and regional levels and are summarised in Table 2.2. Table 2.3 is a summary of the dimensions of the eight conceptual frameworks applied to primary health systems across different countries.

Tables 2.2 and 2.3 do not show the relationship between the dimensions, but they demonstrate that improved health status (or health outcomes/effectiveness) appear in all frameworks, while access, efficiency, equitable outcomes, responsiveness, human resources, physical resources, financial resources, political and socio-economic factors are present in most of them, both in general and in primary health frameworks. Although general and primary health frameworks have a similar pattern, it is possible to highlight some differences between their dimensions. Quality appears in most general health frameworks but in only two primary health ones. Health system use, governance, continuity and health system management appear in most primary health frameworks but are infrequent in general health frameworks.

Health outcome (or effectiveness) is always a goal of the system and eventually may also compose the performance dimension. Efficiency, however, is present as an outcome or system goal (Aday et al., 1999; Handler et al., 2001; Kringos, Boerma, Bourgueil et al., 2010; Starfield, 2001; Veillard et al., 2017; Watson et al., 2004; Wong et al., 2010; World Health Organization, 2007), performance measurement (Hsiao, Heller, & Reisman, 2008; Sibthorpe & Gardner, 2007; World Health Organization, 2007) or both. The same is the case of responsiveness that can figure as an outcome (Hsiao et al., 2008; Murray & Frenk, 2000; World Health Organization, 2007), performance dimension (Aday et al., 1999; Arah et al., 2006; Starfield, 1998; Tham et al., 2010; Watson et al., 2004) or both (Canadian Institute for Health Information CIHI, 2012; van Olmen et al., 2010; Wong et al., 2010; World Health Organization, 2009).

Equity appears in many frameworks, but in different places, nevertheless highlighting equitable access to health services (procedural equity) as a cause of equitable outcomes (substantive equity). The World Health Organization (2008b) stated that health inequities (inequities in outcomes) are caused by unequal access to health care and many other visible or invisible circumstances, such as unequal distribution of power, income and goods. Nevertheless, no framework considered equity at a structural or contextual level.

Table 2.2. Dimensions of the conceptual general health frameworks.

	Aday et al. (1999)	Murray and Frenk (2000)	Starfield (2001)	Handler, Issel, and Turnock (2001)	Watson, Broemeling, Reid, and Black (2004)	Arah, Westert, Hurst, and Klazinga (2006)	WHO (2007)	Hsiao et al., (2008)	WHO (2009)	CIHI (2012)	European Commission Health (2015)	Total
Improved health status, wellness, functioning/ effectiveness	X	X	X	X	X	X	X	X	X	X	X	11
Equitable outcomes (equity)	X	X	X	X	X	X		X	X		X	9
Efficiency/value for money	X			X	X	X	X	X	X	X		8
Responsiveness/public satisfaction	X	X			X	X	X	X	X	X		8
Access/accessibility ^a	X				X	X	X	X	X	X	X	8
Quality					X	X	X	X	X	X	X	7
Political and socio-economic factors ^d	X		X	X	X	X				X	X	7
Financial resources/ expenditure/cost	X			X	X	X				X	X	6
Human resources ^c		X		X	X			X	X		X	6
Physical resources (facilities, medical products, vaccines and equipment)	X			X	X			X	X		X	6
Financing process (collecting, pooling and purchasing)		X					X	X	X	X		5
	X			X	X	X					X	5

Behavioural and cultural factors											
Physical environment	X		X		X				X	5	
Equitable access to health services (equity)				X		X			X	X	4
Safety						X	X	X	X		4
Governance/stewardship/policy development		X					X	X	X		4
Health system's use/service delivery/clinical activities ^b		X		X		X			X		4
Informational resources				X			X	X	X		4
Genetic endowment	X		X		X				X		4
Social/financial risk protection						X	X	X			3
Innovation		X			X				X		3
Organisation	X			X			X				3
Sustainability					X				X		2
Risk factors and behaviours	X							X			2
Appropriateness					X				X		2
Comprehensiveness					X				X		2
Coverage						X		X			2
Continuity					X				X		2
Regulation					X			X			2
Health system characteristics/processes non-specified			X	X							2

Table 2.2. (Continued)

	Aday et al. (1999)	Murray and Frenk (2000)	Starfield (2001)	Handler, Issel, and Turnock (2001)	Watson, Broemeling, Reid, and Black (2004)	Arah, Westert, Hurst, and Klazinga (2006)	WHO (2007)	Hsiao et al., (2008)	WHO (2009)	CIHI (2012)	European Commission Health (2015)	Total
Demographic characteristics									X		X	2
Coordination										X		1
Health system management					X							1
Demand/need				X								1
Network/linkages												0
Service availability/range of services												0

Notes: ^aGeographical, financial, administrative, cultural and timeliness.

^bVolume, distribution, type and qualities.

^cWorkforce availability, competence, motivation and development.

^dSocioeconomic position, life conditions and political context.

(See Sampaio and Blair (2018) for further information)

Table 2.3. Dimensions of the primary health care conceptual frameworks.

	Starfield (1998)	Sibthorpe and Gardner (2007)	Kringos, Boerma, Hutchinson, van der Zee, and Groenewegen (2010)	van Olmen et al. (2010)	Wong et al. (2010)	Tham et al. (2010)	Jahanmehr et al. (2015)	Veillard et al. (2017)	Total
Improved health status, wellness, functioning/ effectiveness	X	X	X	X	X	X	X	X	8
Access/accessibility ^a	X	X	X	X	X	X	X	X	8
Health system's use/ service delivery/clinical activities ^b	X	X	X	X	X	X	X	X	8
Human resources ^c	X	X	X	X	X	X	X	X	8
Governance/stewardship/ policy development	X	X	X	X	X	X		X	7
Physical resources (facilities, medical products, vaccines and equipment)	X	X		X	X	X	X	X	7
Efficiency/value for money		X	X		X	X	X	X	6
Responsiveness/public satisfaction	X	X		X	X	X		X	6
Continuity	X	X	X		X	X		X	6
Health system management	X	X		X	X	X		X	6

Table 2.3. (Continued)

	Starfield (1998)	Sibthorpe and Gardner (2007)	Kringos, Boerma, Hutchinson, van der Zee, and Groenewegen (2010)	van Olmen et al. (2010)	Wong et al. (2010)	Tham et al. (2010)	Jahanmehr et al. (2015)	Veillard et al. (2017)	Total
Financial resources/ expenditure/cost	X		X		X	X	X	X	6
Equitable outcomes (equity)		X	X		X		X	X	5
Political and socio- economic factors ^d	X			X	X		X	X	5
Appropriateness		X			X	X			3
Comprehensiveness			X		X			X	3
Coordination			X		X			X	3
Equitable access to health services (equity)		X	X				X		3
Financing process (collecting, pooling, purchasing)		X		X				X	3
Network/linkages		X	X			X			3
Innovation		X	X					X	3
Informational resources		X		X				X	3
Service availability/range of services	X		X					X	3

Demand/need		X		X		X	3
Sustainability		X			X		2
Risk factors and behaviours		X				X	2
Coverage						X	2
Quality			X	X			2
Safety		X	X				2
Organisation	X	X					2
Genetic endowment	X					X	2
Behavioural and cultural factors	X			X			2
Physical environment	X				X		2
Social/financial risk protection				X			1
Regulation				X			1
Demographic characteristics						X	1
Health system characteristics/processes non-specified							0

Notes: ^aGeographical, financial, administrative, cultural and timeliness.

^bVolume, distribution, type and qualities.

^cWorkforce availability, competence, motivation and development.

^d Socio-economic position, life conditions and political context (see [Sampaio and Blair \(2018\)](#) for further information).

Notwithstanding the importance social determinants of health, contextual dimensions were not included in seven frameworks (Hsiao et al., 2008; Kringos, Boerma, Hutchinson et al., 2010; Murray & Frenk, 2000; Sibthorpe & Gardner, 2007; Tham et al., 2010; World Health Organization, 2007, 2009). Even when the objective is to appraise the primary child health system, which may not be responsible for changing variables out of its domain, health determinants were not present in any framework. Contextual factors allow a broader understanding of the system (see Chapter 17), and it has been shown that health determinants can have a higher impact on health outcomes than health care (Donkin, Goldblatt, Allen, Nathanson, & Marmot, 2017).

Obviously, ‘it is hard to isolate the impact of health care from the impact of other determinants of health status’ (Hurst & Jee-Hughes, 2001). However, a conceptual framework ideally will contribute to operationalise statistical models to measure the impact of each variable. Sometimes, a concept is not easily identified in the framework figure. Yet, it is implicit in the description of another concept. This is described in Kringos, Boerma, and Hutchinson et al. (2010), which included effectiveness as a feature of quality dimension. A different situation occurred in Starfield’s, 1998 framework (Starfield, 1998), where the author acknowledges equity’s importance as a system goal, but did not include it explicitly in her framework, not even in its description. Additionally, the frameworks vary in focus, being broader or more specific. For example, Starfield produced two separate frameworks with differing emphasis of the health system within the wider context of health (Starfield, 1998, 2001).

Moreover, as already mentioned, there is variation in the definitions of the concepts, when available. Responsiveness, for example, varies between patient ‘satisfaction and acceptability’, which depend on expectations, and ‘experience’, which ‘seeks to describe objective characteristics of health service delivery, such as whether patients were (factually) given a choice of treatment’ (Hurst & Jee-Hughes, 2001).

Adapting Frameworks for MOCHA

A major concern for the MOCHA project is that none of the identified frameworks are child specific (see Chapter 6), which is important because of the specific needs of children from primary care (see Chapter 1).

Many of the appraisal frameworks are constructed on a structure-process-outcome theme; describe capacity-performance-health status; or are focused on input/output and outcomes. Thus, all attempt to relate the various components in a linear framework, rather than either looking at a dynamic interactive system or focussing on the individual child as the reactive and proactive subject of care. Nearly all of the frameworks recognise that health status of a population cannot solely be attributable to the health system but must be analysed in the context of broader environmental, economic and social situations. This raises the conundrum of how to estimate the balance between primary care combatting the adverse effects of external determinants of health as they adversely affect individual child,

as opposed to the effort that can be invested in preventively addressing the determinants such as by combating household smoking or advocating for better housing for families with small children. Overall, however, the utility of having such appraisal frameworks does allow a conceptual framework to be developed, which can contribute to seeking to operationalise statistical models to measure the impact of each variable.

The Primary Health Care Activity Monitor for Europe (PHAMEU) is a significant research group that has attempted to develop a scoring system following a structure–process–outcome framework. This project concluded that a generic all-ages primary care system can be defined and approached as:

a multidimensional system structured by primary care governance, economic conditions and primary care workforce development, facilitating access to a wide range of primary care services in a coordinated way, and on a continuous basis, by applying resources efficiently to provide high quality care, contributing to the distribution of health in the population. Primary care contributes through its dimensions to overall health system performance and health. (Kringos, Boerma, Hutchinson et al., 2010)

This European primary care monitor was subsequently tested to rate the strength of primary care systems across Europe (Schäfer et al., 2011). While this work did not consider the specific needs of children (such as different types of access), we have included this in our table of components as a variable that may be used to analyse the primary care systems for children.

Recognising the value of a conceptual framework, but the failings of the existing published ones to meet the specific needs of children, and in a primary care setting, the MOCHA research team devised an alternative conceptualisation. At the heart of this has been our core theme of child centricity (see Chapter 4) and the need to focus on delivery to the child through the development of the life course. The MOCHA working model focuses on the child, the life course, the primary care team and the societal and environmental context (see Figure 2.1).

The MOCHA model is based on three theoretical frameworks, Bronfenbrenner’s ecological model of determinants of health (Bronfenbrenner, 1986), a modified PHAMEU; model of determinants of quality of primary care (Kringos, Boerma, Hutchinson et al., 2010); and a life course epidemiological framework for childhood health and disease (Kuh, Ben-Schlomo, Lynch, Hallqvist, & Power, 2003). The left-hand circle was inspired by the visualisation of positive and negative health determinant forces developed by the Child Health Indicators of Life and Development (CHILD) (Rigby & Köhler, 2002) project and describes influences on health and health policy decisions. Within the community setting, a family makes choices and decisions about health based on what is available, knowledge and cultural influences, and finally – potentially influenced by all of these practices – the child. Alternatively, viewed from the inside out, it can be seen as the child in the centre, able to influence and make

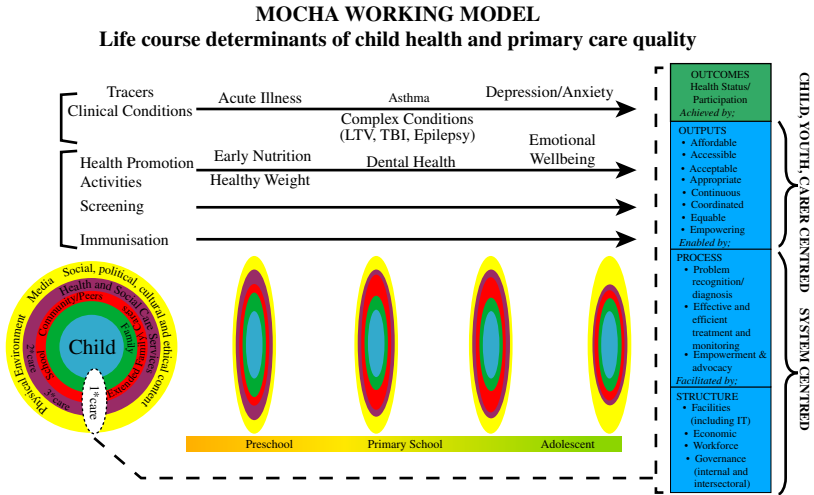


Figure 2.1. The MOCHA working model.

decisions about what is available to him or her in terms of health in the context of the family, and with appropriate support the child can further exert some influence on the wider determinants. In practice, both situations occur in a dynamic process which is constantly in flux.

The variation in the respective widths of the coloured elements of the diagram as the child moves from one age range to another indicates how the various determinants are weighted for a typical child over time. For example, there is a relatively large influence from parents and family in the early years, and great influence of school, peer groups and external influences such as the media, as children grows older.

A combination of preventive care, physical and mental health and short-term and long-term conditions has been selected as tracer conditions, examples of which appear in the diagram above the circles. Project scientists have surveyed the country agents concerning various different aspects of the MOCHA Working Model so that there is a balance of acute conditions, long-term conditions, mental health and the well child. The primary care system is closely related, in the left-hand circle, to secondary and tertiary care, in other words, vertical, aspects and to social care education and justice as a horizontal axis of interaction.

Practical Application of Appraisal Methodologies

Identification of models to form a visualisation is one part of the appraisal process in the MOCHA project. A second necessary part has been empirical

analysis, though as will emerge this has been severely hampered by the lack of accessible data (see Chapter 7).

To seek to achieve meaningful appraisal, the project's scientists looked in particular at the following aspects: health status of children and clinical outcomes which are theoretically attributable to the primary care system, patient perspectives of the primary care system derived from interviews with children in five countries, an economic appraisal in relation to infant mortality rates and the influence of incentives and penalty systems, the ability of the system to provide equitable provision (preventive care, immunisation, diagnosis of development disorders, diagnosis of congenital anomalies, ambulatory sensitive conditions) and appraisal in terms of children's rights (consent and participation).

A number of tracer conditions have been identified to allow us to assay the different structures and processes that exist in the 30 countries in relation to the key functions of primary child health care. Clinical scenarios were developed to illustrate how these functions operated in each country. These were first access care in acute illness, chronic management of disease and its impact, prevention of disease through screening and immunisation, early detection of developmental or congenital disorders, support in coordinating care for children with complex physical and mental health care needs. We also attempted to harvest data at national and regional level using the MIROI tool (see Chapter 7) and worked with a selected number of countries who had sufficiently granular data on different socio-economic dimensions to allow us to appraise the ability of the primary care system to provide equitable service provision/health outcome (see Chapter 7). The MOCHA approach to the model structures is summarised in Table 2.4. The appraisal process and the use of case studies to develop these in the different countries are described in Table 2.5. Table 2.6 describes the approach to the life course of the child. Each table represents a different appraisal lens whether from a pure health care system perspective, a child and family-centric perspective or using a developmental time basis. The following chapters describe in more detail how this was achieved and the results from the country agent's responses and scientific reviews of the literature.

Summary

In order to successfully appraise the models of primary care for children, the MOCHA project has systematically identified the different types of models that exist, acknowledging the complexity of doing this, particularly with respect to the lack of child focus in more previous researches. An analysis of the existing appraisal frameworks also highlighted the lack of a child-centric perspective, leading to the creation of the MOCHA working model. The project has addressed this appraisal in a number of ways, not least because of the range of expertise and subject focus on the different elements of primary care as they relate to children. The results are shown in the subsequent chapters of this report.

Table 2.4. Structure of a model in terms of the MOCHA project.

	Structure	Process	Outputs	Outcomes
	Facilities (inc IT), Economic, Workforce, Governance	Problem Recognition, Diagnosis, Treatment, Monitoring	Affordable, Accessible, Acceptable, Appropriate, Continuous, Confidential, Equitable, Empowering	Health Status, Participation
Identification of models (WP1)	Existing model concepts	Existing model concepts	Existing model concepts	Conceptual framework
Interface with secondary care for children needing complex care (WP2)	Mechanisms for coordination and communication of care such as IT facilities and communication pathways	Monitoring and communication between primary and secondary care. Communication between services (e.g. health, social care, education, leisure, etc)	Continuous care, dignity of care	Optimum health for the child
School and adolescent health (WP3)	Structure of school health services	Monitoring of conditions in schools, treatment, handling of medicines in schools, preventive medicine in schools, health education Transition of care for adolescents into adult care	Accessibility for adolescents School health contributing to health education, health promotion	Conditions, indicators of outcomes
Quality measures and outcomes (WP4)	System based on evidence, data available to assess quality and evaluate	Evaluation of quality of care	Reliable, valid, relevant and useable performance information for policy-makers, patients, providers and citizens	Optimum care and efficient health service

Use of large datasets (WP5)	Access to data	Use of databases to appraise and evaluate care	Child-specific data	Identification of innovative outcome measures
		Use of large data sets to devise innovative quality measures	Appropriate data	Identifying unifying common clinical concepts relevant to children
Economic and skill set evaluation and analysis (WP6)	Economic structure of health systems	Training of health workforce		Effect of different systems on health outcomes to children
	Workforce capacity of health systems, including planning and incentives	Analysis of health needs to inform workforce		
Equity (WP7)	Health system accessible to all	Capacity in the system to ensure equity	Accessible service for all	Optimum health for disadvantaged population groups
		Methods to encourage hard-to-reach populations to make use of health service	Adaptable service for all types of user	
Electronic records (WP8)	eHealth system in place	Continuity of care (affecting also quality of care); for older children balancing holistic record keeping with confidentiality; effective monitoring of individual and	Confidential and secure records	Population confidence in confidentiality and security
			Accessible to the correct health personnel	Improved communication

Table 2.4. (Continued)

	Structure	Process	Outputs	Outcomes
	Facilities (inc IT), Economic, Workforce, Governance	Problem Recognition, Diagnosis, Treatment, Monitoring	Affordable, Accessible, Acceptable, Appropriate, Continuous, Confidential, Equitable, Empowering	Health Status, Participation
		population health, across health models (primary, secondary, tertiary) and across national boundaries	Aids efficiency of care across disciplinary boundaries and national boundaries in the EU	and collaboration between disciplines Improved efficiency of care
Optimal models (WP9)	MOCHA recommendations for structural elements of health service			

Table 2.5. Primary care in a child centred ecological model and MOCHA.

	Child	Family	School/Community/ Peers/Extended Family/Carers	Health and Social Care Services, Secondary Care, Tertiary Care, Social Care	Social and Political Context, Media
Identification of models (WP1)	Case study focus	Case study focus	Case study focus – overlaps with WP3	Case study focus – overlaps with WP2	Workstream on social and political context
Interface with secondary care for children needing complex care (WP2)	Uses case studies – child focus (overlap with WP1)	Case study focus complex care and family; social care perspective; child protection (connects to WP1)	Case study focus – extended family and external carers; social care context, education (Connects to WP1)	Focus on interaction between primary and secondary/tertiary care; interaction with social care services	
School and adolescent health (WP3)	Adolescent care – focus on empowerment of child; accessibility; autonomy in decision-making	Family relationship with school? Family relationships (problematic?) in terms of well-being in adolescence?	School health focus; peer influence on health, autonomy in adolescence and greater influence of friends.	Structure and function of school health services Alternative focus of services for appropriate and accessible adolescent health care	Social media Social acceptance of school health services Encouragement for adolescents to use outreach/other adolescent-specific services

Table 2.5. (Continued)

	Child	Family	School/Community/ Peers/Extended Family/Carers	Health and Social Care Services, Secondary Care, Tertiary Care, Social Care	Social and Political Context, Media
Quality measures and outcomes (WP4)	Child vaccinations, conditions	Family involved in service, engaged in service	Health system appropriate for community needs/ setting	Good communication and coordination between different services and models	Social acceptance of quality Good understanding of quality evidence base Social agreement on what is a good outcome
Use of large datasets (WP5)	Consent for data to be collected and used	Acceptance of need for data, consent for child and family data to be collected and used	Data availability and use in community services.	Data availability Use of data to inform service structure and communication needs	Social acceptance of data collection and use
Economic and skill set evaluation and analysis (WP6)	Appropriate workforce for child's needs (skilled)	Communication between family and health workforce to	Accessible and appropriate workforce in community settings	Motivated and skilled workforce in health system	(Earned) Respect for health workforce

	Accessible (friendly, knowledgeable) workforce	common aim (good outcome)		Workforce communication between primary, secondary, tertiary care etc.	
Equity (WP7)	Child is able and willing to access and engage with health service	Family is able and willing to access and engage with health service	Community access equitable to all	Equity of access to health service (based on clinical/social need?)	Social context taken into account to adapt health service so that all populations can access if needed
Electronic records (WP8)			Sharing of eHealth records across disciplines and services (when appropriate)	Sharing of eHealth records across disciplines and services (when appropriate)	
Optimal models (WP9)	Child centredness taken into account in optimum model recommendations; positioning of the health system in wider ecological model				

Table 2.6. Life stage of a child and the MOCHA project (Broadly illustrated by school ages, which may have different parameters in different countries).

	Preschool	School	Adolescent	Adult
Identification of models (WP1)	Case study of young child in particular health service model	Case study using school-aged child	Case study of adolescent (in conjunction with WP3?)	Case study – transition to adulthood
Interface with secondary care for children needing complex care (WP2)	Infant acquired/ congenital conditions managed in primary and secondary care	Acquired/congenital conditions managed at school. Challenges of child with chronic condition	Effects of puberty/ development on child with chronic condition (e.g. mental health, brain injury)	Transition to adult services
	Growth and development of a child with chronic condition		Ability of services to coordinate care to a child preparing for adulthood	Developmental age (learning disability) not related to chronological age
School and adolescent health (WP3)		School health services (SHS)	Specific adolescent health services	
Quality measures and outcomes (WP4)	Measures of quality of care for young children;	Measures of quality of care for school-aged children	Measures of quality of care for adolescents	
	Appropriate care built into model	Appropriate care built into model	Appropriate care built into model	
Use of large datasets (WP5)	Age group data	Age group data	Age group data	

Economic and skill set evaluation and analysis (WP6)	Workforce specific for early years (training, capacity)	Appropriate workforce for school-aged children (inc. school health services in conjunction with WP3)	Appropriate workforce for adolescents (with WP3)	Transition to adult services (financial aspects)
Equity (WP7)	Equity for young children, child rights, advocacy for young children	Child rights, advocacy, accessibility and equality for all population groups	Child rights, dignity, respect for young person	
	Accessibility for all population groups		Accessibility for all population groups	
Electronic records (WP8)	Electronic records from birth	Electronic records encompassing different services (education, SHS, social, etc.)	Electronic records encompassing different services (education, SHS, social, etc.)	
Optimal models (WP9)	Age and developmental	stage of child taken into account in optimum model		

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