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Integrated care models: an overview

Working document

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Health Services Delivery Programme
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Abstract

Over the past decade many definitions, concepts and theories have emerged explaining and defining what integrated care is and what the main building blocks for the successful integration of services are. By means of a scoping literature review, this document aims to provide conceptual clarity and consolidate the current understanding of integrated care models. In light of the current implementation of the European Framework for Action on Integrated Health Services Delivery, this document provides a cross-cutting analysis of components that challenge or support integrated care, and delivers an output of generic considerations when designing and implementing integrated care models.

Keywords

DELIVERY OF HEALTHCARE, INTEGRATED
HEALTH CARE SYSTEMS
HEALTH SERVICES

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List of abbreviations

AHRQ	Agency for Healthcare Research and Quality
AQuA	Advanced Quality Alliance
CCM	Chronic Care Model
CCU	Continuity of Care Units
EFFA IHSD	European Framework for Action on Integrated Health Services Delivery
GP	general practitioner
IHO	integrated healthcare organizations
IHSD	integrated health services delivery
KP	Kaiser Permanente
PAHO	Pan-American Health Organisation
PCMH	Patient-Centred Medical Home
VA	Veterans Health Administration
USA	United States of America

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Preface

In 2012, Member States of the WHO European Region endorsed the European health policy *Health 2020*, recognizing health system strengthening as one of four priority action areas in setting out a course of action for achieving the Region's greatest health potential by year 2020 *(1)*. The vision put forward by Health 2020 calls for people-centred health systems. In doing so, it extends the same principles as first set out in the health-for-all and primary health care agenda.

In line with these priorities, strategic entry points over the 2015–2020 period have been further delineated in two priority areas: (i) transforming health services to meet the health challenges of the 21st century and (ii) moving towards universal coverage for a Europe free of catastrophic out-of-pocket payments *(2)*.

Working to take the first of these priorities forward and in alignment the WHO global strategy on people-centred and integrated health services *(3)*, this document is intended to contribute to the development of the European Framework for Action for Integrated Health Services Delivery *(4)*.

About this document

In many health systems, integrated care is seen as a possible solution to the growing demand for improved patient experience and health outcomes of multimorbid and long-term care patients. During the last decade different models and approaches to integrated care have been widely applied and documented across a variety of settings, which has resulted in the multiplicity of definitions and conceptual frameworks. A literature review conducted by Armitage et al. *(5)* uncovered some 175 overlapping definitions and concepts of integrated care, indicating the absence of consensus in its definition. Such multiplicity stems from the polymorphous nature of the concept that has been applied from several disciplinary perspectives such as public administration, social science, psychology as well as differing professional points of view, such as clinical vs. managerial, holistic care vs. disease management and public health vs. long-term care. Integrated care is, therefore, associated with a wide range of different objectives *(6)*.

Today, the lack of common definitions and underlying concepts aggravates the already existing difficulty to assess integrated care *(7)*. The need to better understand integrated care extends beyond theoretical rhetoric and is based on the emerging pressure on health systems to develop and invest in integrated care, which, in turn, calls for a pragmatic understanding of the concept and mapping of evidence. This document aims to extract such knowledge from the existing conceptual discourse on integrated care and evidence from the field. By doing so, it will serve as a tool for understanding and distinguishing integrated care models in practice.

Purpose and rationale

This document aims to consolidate the insights of conceptual frameworks, as well as provide a synthesis of existing integrated care models.

The following key questions were posed to guide the review process:

1. How can ‘integrated care’ be defined?
2. What are the forms and taxonomies of integrated care?
3. What are the commonly known models of integrated care?
4. How can findings of this review inform an understanding and practical application of European Framework for Action on Integrated Health Services Delivery (EFFA IHSD)?

The ultimate objective of this document is to provide conceptual clarity and consolidate practical know-how in designing and implementing integrated care models. Notably, earlier versions of the document contributed to the development of EFFA IHSD *(4)*.

Methods and sources of evidence

This report has adopted the methodology of a scoping literature review. Guided by the specific expertise of its contributors, the report is a synthesis of selective reviews of

definitions, conceptual frameworks and practical models of integrated care. The range of reviewed integrated care models is not exhaustive owing both to the limitations in the scope and methodology of this review. However, through inclusion of a variety of types and levels of integration, the range of components and settings described in reviewed integrated care models has reached a certain saturation point, allowing for the subsequent analysis and extrapolation of findings.

Notably, this document represents an ex-post approach: earlier versions served as the background document for development of EFFA IHSD, while the current version has been shaped by the evolution and adoption of the Framework itself.

Overview of sections

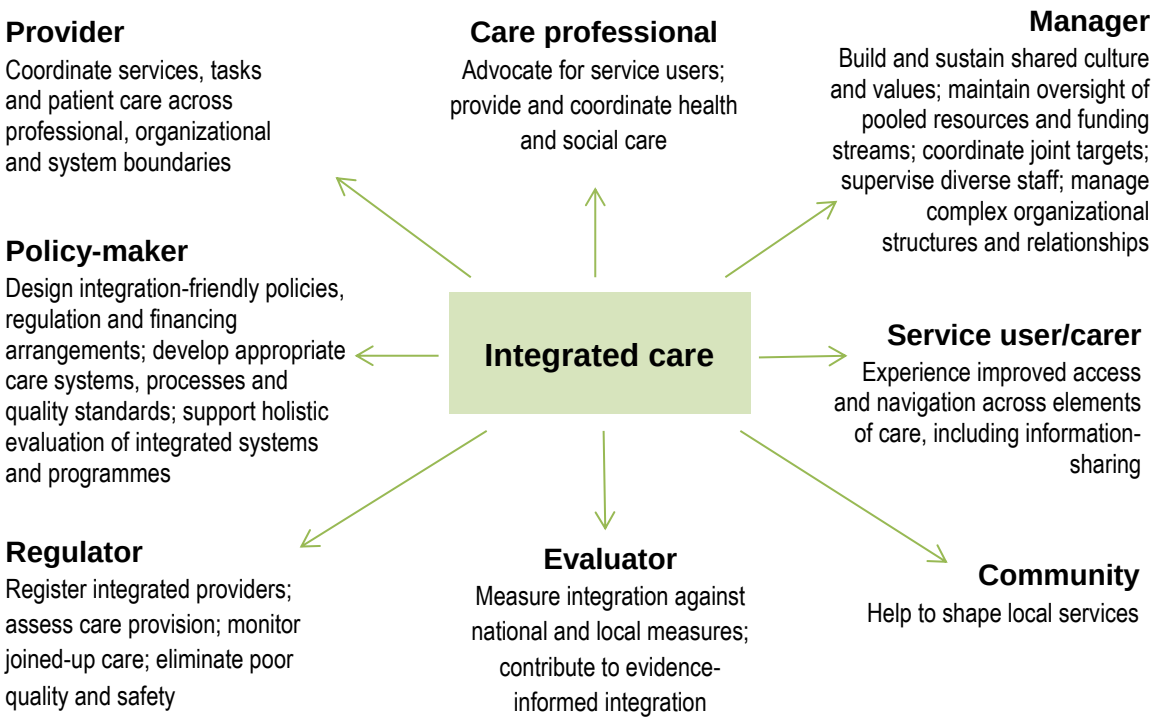
Responding to the key questions posed has in-turn informed the sections of the document. Section 1 seeks to clarify the concept and taxonomies of integrated care. Section 2 examines well-known integrated care models. Finally, Section 3 provides a synthesis of the reviewed evidence and summarizes the potential input to understanding and practical application of EFFA IHSD.

Section one: Integrated care as a multifaceted concept

1.1 Definition of integrated care

Integrated care is often contraposed to fragmented and episodic care, and it is used synonymously to terms like *coordinated care* and *seamless care*, among others. However, there is no unifying definition or common conceptual understanding of integrated care, which is most likely a result of 'the polymorphous nature of integrated care itself' *(7)*. In effect, the perspectives that construct the concept are likely to be shaped by views and expectations of various stakeholders in the health system (Fig. 1).

Fig. 1. Perspectives shaping integrated care



Source: Adapted from *(8)*

Based on the variety of perspectives and concepts, three principal definitions can be distinguished from the literature.

1. **A process-based definition used by many national governments in order to understand the different components of integrated care.**

> "Integration is a coherent set of methods and models on the funding, administrative, organizational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors. The goal of these methods and models is to enhance quality of care and quality of life, consumer satisfaction and system efficiency for people by cutting across multiple services, providers and settings. Where the

> result of such multi-pronged efforts to promote integration leads to benefits for people, the outcome can be called *integrated care*" (adapted from *(9)*).

This definition imbues integrated care with the qualities of care coordination, as a continuous support process over time, yet primarily bounded within the scope of health care. The definition rightly describes the complexity and intersectoral nature of integrated care and it has the advantage of distinguishing between integration, i.e. the process by which professionals and organisations come together; and integrated care understood as the outcome experienced by service users. However, the definition is rather a mechanistic one, as integrated care is seen as a set of interconnecting processes rather than something that has a specific meaning or value to the end user.

2. A user-led definition that supports a defining narrative and purpose for integrated care strategies at all levels of the system.

> "My care is planned with people who work together to understand me and my carer(s), put me in control, coordinate and deliver services to achieve my best outcomes" *(10)*.

This definition of integrated care, now employed by the Government of England as part of a central narrative to frame its integrated care strategies, is determined by people themselves. This user-led definition followed a year-long national consultation process coordinated by National Voices – a patient representative group. In this instance, the definition itself is perhaps not as important as the process through which it was derived, as it highlights the importance of population and individual needs in design, implementation and evaluation of integrated care models. The definition has been accepted nationally as the narrative for cross-governmental efforts.

3. A health system-based definition as used by WHO Regional Office for Europe.

> "Integrated health services delivery is defined as an approach to strengthen people-centred health systems through the promotion of the comprehensive delivery of quality services across the life-course, designed according to the multidimensional needs of the population and the individual and delivered by a coordinated multidisciplinary team of providers working across settings and levels of care. It should be effectively managed to ensure optimal outcomes and the appropriate use of resources based on the best available evidence, with feedback loops to continuously improve performance and to tackle upstream causes of ill health and to promote well-being through intersectoral and multisectoral actions" *(4)*.

This definition adopts a health system perspective and uses the term 'integrated health services delivery (IHSD)', acknowledging that integrated care is achieved through the alignment of all health system functions and effective change management.[1]

Implicit to all three of these definitions is the notion that integrated care should be centred on the needs of individuals, their families and communities *(8)*. Indeed, there is considerable evidence that the use of such a perspective ought to lie at the heart of any discussion about integrated care in order to bring together potentially competing factions *(11)*. This is not just because a user-centred vision for care delivery overcomes the tendency to choose structural

[1] In the context of this report, terms 'integrated care' and 'integrated health services delivery' are used interchangeably

or organisationally-based solutions, but also because it provides a compelling case as to the objectives for integrated care and, therefore, how success might be assessed *(12)*.

1.2 Taxonomies of integration

Evidence suggests that transformations towards integrated care require a good understanding of the various dimensions of integration; which in effect calls for the development of a comprehensive overview. Drawing from the definitions described above, taxonomies of integrated care can be distinguished.

Table 1. Typologies of integration

Organizational	Integration of organizations are brought together formally by mergers or through 'collectives' and/or virtually through coordinated provider networks or via contacts between separate organizations brokered by purchaser
Functional	Integration of non-clinical support and back-office functions, such as electronic patient records
Service	Integration of different clinical services at an organizational level, such as through teams of multidisciplinary professionals
Clinical	Integration of care delivered by professional and providers to patients into a single or coherent process within and/or across professions, such as through use of shared guidelines and protocols

Source: adapted from *(12)*

Lewis et al. *(12)* distinguish four ***types*** of integration: organizational, functional, service and clinical (Table 1). Organizational integration can be described as bringing together several organizations through coordinated provider networks and mergers. Functional integration means integration of non-clinical and back-office functions through, for example, shared electronic patient records. Service integration refers to integration of different clinical services at an organizational level by, for example, establishing multidisciplinary teams. Clinical integration is integration of care into a single and coherent process within/or across professions by means of, among others, using shared guidelines and protocols.

Each of these integration types can be further characterized by the ***mechanism*** of integration. When integration is based on shared values for coordination and collaboration that is seen as normative integration; integration characterized by the coherence of rules and policies at various levels of the organisation is systemic integration *(12)*.

Integration can also be described as ***horizontal*** or ***vertical*** *(13)*. Horizontal integration occurs when activities across operating units and/or organizations that are at the same stage in the process of delivering services come together. Examples of horizontal integration can include mergers of acute hospitals or mergers of social and health care organizations. Vertical integration implies coordination of services among operating units that are at different stages in the process of delivering services. Vertical integration brings together organizations at different levels of the hierarchical structure under one management umbrella by, for example, integrating primary and secondary care, or general practice and community care.

Any of the above mentioned integration processes can occur as either ***real*** or ***virtual*** integration *(13)*. The former is characterized by mergers between organizations by for example, sharing of physical assets and infrastructure, while the latter depicts rather the formation of alliances, networks and contractual arrangements.

Depending on the scope of the integration process, Nolte and McKee *(6)* distinguish the ***breadth*** of integration. It can range from care integration for particular individuals, care integration for specific diseases or population groups, and care integration for entire population. Similar to this, Curry and Ham *(13)* distinguish ***levels*** at which integration can be pursued. Integration at the micro-level aims to achieve a seamless care experience for the individual, made possible, for example, through personalized care plans. Integration at the meso-level aims to provide integrated care for a particular care group or populations with the same disease or conditions. Integration at the macro-level can be described as provision of integrated care to an entire population through stratification of needs and tailoring services according to these needs.

One can also distinguish the ***time-span*** that integration places focus; it can be oriented towards a specific episode of care, e.g. hospitalization and follow-up for acute surgical condition, or it can be provided adopting a life-course approach, e.g. for chronic conditions *(6)*.

Integrated care can take place at various levels and settings within the health sector, e.g. between primary care and hospitals or as integration of health and social sectors, e.g. care for long-term patients. In this regard, integration can be categorized according to its ***intensity***: full integration involves process of integrating health and social sectors into a new organizational model, while partial integration creates non-binding linkages or ties that support integration between two sectors in order to improve coordination between them *(6)*.

The multidimensional nature of the integration processes points to the sophistication of building integrated care models, as well as to the multiplicity of possibilities in their design. Illustrating this complexity, the following section reviews selected integrated care models.

Section two: Models of integrated care

This section aims to provide an overview of widely known integrated care models in an attempt to capture components and processes involved in their design and implementation. To start, the section reviews models of integrated care according to the scale at which integration happens – from models designed to integrate care for individuals with chronic conditions and disease-specific models to population-based integrated models. The models are sequenced in this way reasoning that wider population models will, as a rule, include elements of more narrowly targeted models. For example, the population-based Kaiser Permanente model described as an example here includes elements of disease management for all chronic patients and case-management for high-risk patients.

2.1 Individual models of integrated care

This group of integrated care models is concerned with individual coordination of care for high-risk patients and/or with multiple conditions and their carers. Individual models of integrated care aim to facilitate the appropriate delivery of health care services and overcome fragmentation between providers *(14)*. Coordination of care for such patients extends beyond one episode of care, where coordination between different providers is necessary, but also embraces the concept of integration across the life-course. Individual models described in the literature vary in design and integration processes that stand behind them. The following sub-sections describe the widely known models.

2.1.1 Case-management

According to the American Case Management Association, case-management is “a collaborative process that encompasses communication and facilitates care along a continuum through effective resource coordination… goals of case management include the achievement of optimal health, access to care and appropriate utilization of resources, balanced with the patient's right to self-determination” *(15)*. Despite the myriad of modifications that have been applied within and outside of the United States of America (USA) system, the generic principle of case-management remains the same: to ensure coordination of a patient’s care through the assignment of a case manager. The role of a case manager can be designated to certified case managers with or without a medical background as well as to advanced primary care nurses or allied health professionals *(15,16)*. Crucial components of case-management include: (i) defining and selecting target individuals for which case management is most appropriate, e.g. patients with multimorbidities, patients frequently admitted to hospitals or patients needing coordination within and across health and social care; (ii) assessment and individual care planning; (iii) regular monitoring of patients; and (iv) adjustment of care plans if necessary. The primary tasks of a case manager are therefore to assess the patient’s and carer’s needs, develop tailored care plan, organize and adjust care processes accordingly, monitor quality of care and maintain contact with the patient and carer *(17)*.

Evidence shows that case-management decreases the number of hospital (re)admissions and improves patient satisfaction, while evidence on cost-effectiveness case-management remains controversial *(13)*. In this regard an important consideration in designing and delivering case-management is that it should be delivered to carefully selected groups of patients that are most likely to benefit from it.

2.1.2 Individual care plans

Care planning is another approach of integrating care for patients with multimorbidity and long-term conditions. The aim is to deliver more personalized and targeted care creating shared care plans that map care processes, clearly articulate the role of each provider and patients in the care process, and hold retrospective and prospective information about the care for a particular patient. Care plans are a point of reference for any provider involved in an individual's care *(13)*. Care coordinators assess the needs of a patient, develop care plans and negotiate and coordinate the delivery of multidisciplinary care *(18)*. The success of care plans that extend to the interface of health and social sectors rely on the influential power that care coordinators are given *(19)*.

Considerations should be made in the design of care plans to ensure that it brings intended outcomes. Similarly to case-management, care plans are costly and labour intensive. Therefore, they require clear eligibility criteria and careful selection of beneficiaries. In developing care plans it is important that the patient and/or the carer has ownership of and understands the plan *(13).* Moreover, care plans should be dynamic in nature, adjusted through periodic assessments and patient feedback. The use of information technology is crucial to facilitate the development of shared care plans that can be accessed by providers across settings, patients and carers.

2.1.3 Patient-centred medical home

Patient-centred medical home(s)[2] (PCMH) have been developed and promoted in the USA as a model for transforming the organization and delivery of primary care. Interest in PCMH emerged due to people's lack of access to primary care, challenges in navigating fragmented care systems and rising costs of care. It was promoted by some of the largest primary care physician societies in the country and its principles were endorsed and extensively tested by a range of purchasers, professionals and consumer organisations.

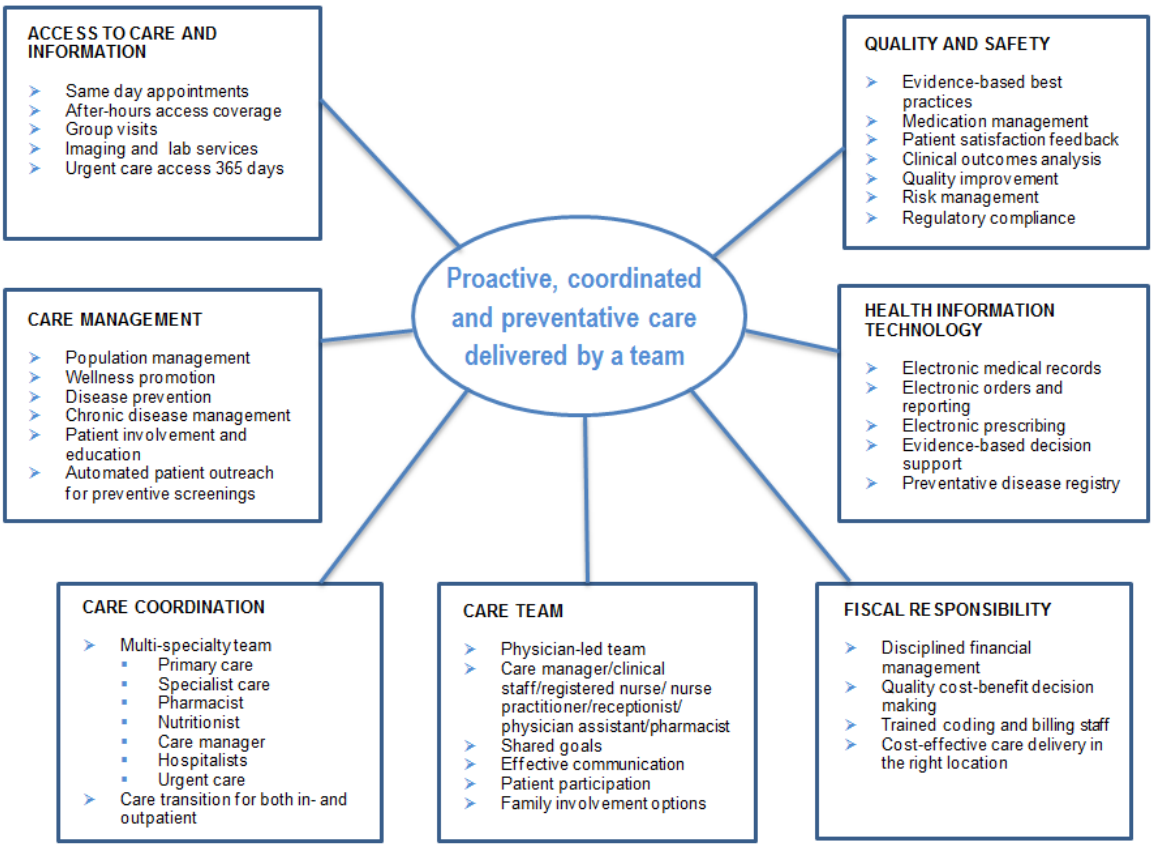
In broad terms, PCMH is a physician-directed group practice that can provide care which is *accessible, continuous, comprehensive and coordinated and delivered in the context of family and community*. The PCMH model adopts a holistic approach to managing patients with chronic diseases, co- and multimorbidities by offering an alternative *individual* model of primary care where patients are assigned to particular medical homes and physicians *(13)*. Therefore, PCMH should not be regarded as a setting where care is delivered but rather as a comprehensive model of organization that delivers the core functions of primary care *(20)*. The key attributes of PCMH are comprehensiveness, patient-centredness, coordination, accessibility, quality and safety.

The PCMH model argues that all types of care, e.g. sub-speciality care, hospitals, home health agencies, nursing homes, and stakeholders, e.g. community, family, public and private community-based services, should be brought together by means of either real or virtual integration. A distinctive feature of the PCMH model is that it offers more personalized care by assigning patients to primary care physicians, ensuring patients know who is responsible for their health and providers know the patients they are responsible for. PCMH is seen as the *gate-opener* to care – as opposed to managing or limiting access – through actively coordinating people to the most appropriate care. This means that much of the care is delivered by multidisciplinary teams in primary care, but in case specialist care is needed, primary care teams buy these services on behalf of the patient *(13)*. PCMH employs the principles of shared responsibility for a patient's health, which is also enabled by a coherent

[2] Sometimes also referred as primary care medical home

provider payment mechanism. Patient registries are recognized to play a special role in the success of PCMH models along with information technology and health information exchanges so that patients get indicated services when and where they need it in a culturally and linguistically appropriate manner (Fig. 2).

Fig. 2. Overview of PCMH attributes delivered at Bend Memorial Clinic, USA



Source: Adapted from *(21)*

Evaluation of the PCMH model shows that it brings a 20 percent reduction in hospital admissions and 12 percent reduction in readmission rates among its beneficiaries *(22).* Criticism of the model suggests that in highly fragmented systems, integration among providers might not happen unless reimbursement mechanisms specifically incentivize integration *(23)*.

2.1.4 Personal health budgets

Based on the assumption that the coordination of care can be best performed by patients themselves, personal health budgets[3] are a model of integrated care that give patients greater autonomy over their care. Over the past two decades, personal health budget models have been piloted in the USA and United Kingdom in the area of home- and community-based long-term services *(24)* and now are implemented in Austria, Germany, Netherlands and Norway *(13)*.

[3] Personal health budgets are sometimes also called *self-directed care.*

The model suggests that acting as budget holders, patients can better coordinate their care according to their needs by purchasing services across providers *(25)*. Cash payments or virtual budgets can be used not only for purchasing services, but also for supporting family members as carers *(13)*. Evaluations of personal health budgets show higher levels of patient satisfaction and lowered rates of unmet needs in comparison to conventional care models, especially among younger patients with disabilities *(26)*. Assessments have also shown higher efficiency in delivered care, mainly due to better continuity and avoidance of duplications. However, studies show that much of the administrative burden and risk falls on patients and their carer, and therefore requires patient capacity to manage it. Quality and the volume of services purchased heavily relies on patients' or carers' ability to adequately assess it, which is difficult given the information asymmetry in health *(27)*.

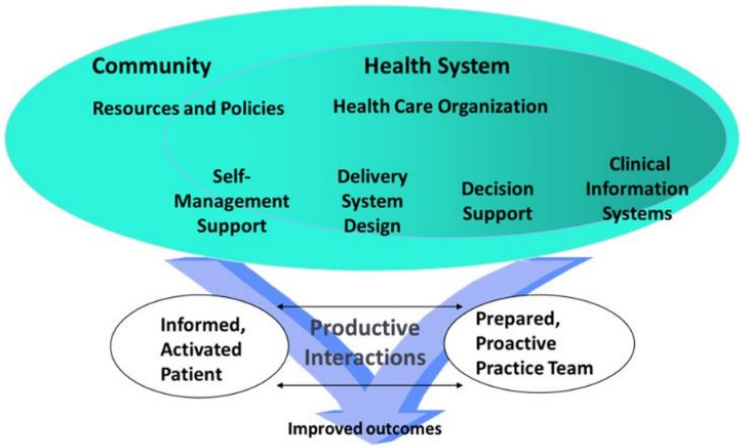
2.2 Group- and disease-specific models

2.2.1 Chronic care model

The chronic care model (CCM) is one of the most well-known and widely applied integrated care models. CCM was developed in 1998 by a group of researchers from the MacColl Institute for Healthcare Innovation in USA *(28)*. The model was developed in recognition of health system failures to meet the needs of people with chronic illnesses and provide a comprehensive framework for the organization of health services in order to improve outcomes for people with chronic conditions. CCM suggests to shift from acute, episodic and reactive care towards care that embraces longitudinal, preventative, community-based and integrated approaches. Developed as an outcome of extensive systematic literature review, the design of CCM brings together evidence-based factors and components that are widely documented to have a positive impact on patient outcomes, quality of care and cost savings.

CCM consists of six main domains: community, health system, self-management support, delivery system design, decision support and clinical information systems (Fig. 3).

Fig. 3. The Chronic Care Model



Source: *(29)*

Each of the domains can be further unpacked into strategies that are essential for achieving integrated chronic care. For example, within the community domain, a key strategy consists of mobilizing community resources to meet the needs of patients by establishing effective

partnerships with community organizations and encouraging patients to participate in community programmes. Activities within the community domain should also include advocacy to adequately represent patient interests in setting the health agenda. An overview of strategies within each domain is shown in Table 2. Based on pilot testing and published evidence, the model was revised in 2003 and components such as cultural competency, patient safety, care coordination, community policies, and case management were added to the initial scheme.

Table 2. Key components and strategies of CCM

Domain	Objective/description	Strategies
Community	Mobilize community resources to meet needs of patients	▪ Encourage patients to participate in effective community programs ▪ Form partnerships with community organizations to support and develop interventions that fill gaps in needed services ▪ Advocate for policies to improve patient care*
Health system	Create a culture, organization and mechanisms that promote safe, high quality care	▪ Visibly support improvement at all levels of the organization, beginning with the senior leader ▪ Promote effective improvement strategies aimed at comprehensive system change ▪ Encourage open and systematic handling of errors and quality problems to improve care* ▪ Provide incentives based on quality of care ▪ Develop agreements that facilitate care coordination within and across organizations
Delivery system design	Assure the delivery of effective, efficient clinical care and self-management support	▪ Define roles and distribute tasks among team members ▪ Use planned interactions to support evidence-based care ▪ Provide clinical case management services for complex patients* ▪ Ensure regular follow-up by the care team ▪ Give care that patients understand and that fits with their cultural background*
Self-management support	Empower and prepare patients to manage their health and health care	▪ Emphasize the patient's central role in managing their health ▪ Use effective self-management support strategies that include assessment, goal-setting, action planning, problem-solving and follow-up ▪ Organize internal and community resources to provide ongoing self-management support to patient
Decision support	Promote clinical care that is consistent with scientific evidence and patient preferences	▪ Embed evidence-based guidelines into daily clinical practice ▪ Share evidence-based guidelines and information with patients to encourage their participation ▪ Use proven provider education methods ▪ Integrate specialist expertise and primary care
Clinical information systems	Organize patient and population data to facilitate efficient and effective care	▪ Provide timely reminders for providers and patients ▪ Identify relevant subpopulations for proactive care ▪ Facilitate individual patient care planning ▪ Share information with patients and providers to coordinate care* ▪ Monitor performance of practice team and care system

* strategies that were added to the original CCM after 2003 revision

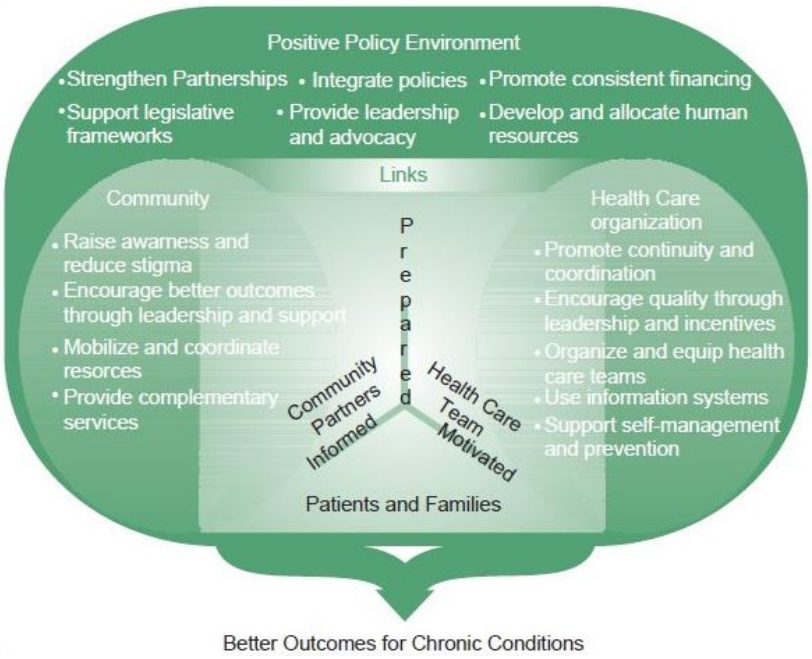
Source: adapted from *(28)*

Evidence-based strategies under each domain, in combination, foster productive interactions between informed patients who take an active part in their care and providers with resources and expertise *(28)*. The key to the success of the CCM, as demonstrated in a number of

projects, has been the productive, bidirectional communication within multidisciplinary team as well as the provision of continuous support to patients for self-care *(30)*. Reviews conducted in regards to the cost-effectiveness of the CCM have reported that while application of CCM and its components lead to better patient outcomes and satisfaction, the return of upfront investments requires time *(30)*.

Other CCM modifications include WHO's Innovative Care for Chronic Conditions framework *(31)* and the Expanded Chronic Care Model *(32)*. This new generation of chronic care models take into account broad determinants of health and focus on a system of coordinated interventions across different types, levels and settings of care, extending actions beyond the clinical intervention towards health promotion, prevention, screening and early detection, management of diagnosed cases, rehabilitation and palliative care (Fig. 4).

Fig. 4. The Innovative Care for Chronic Conditions Model



Source: *(31)*

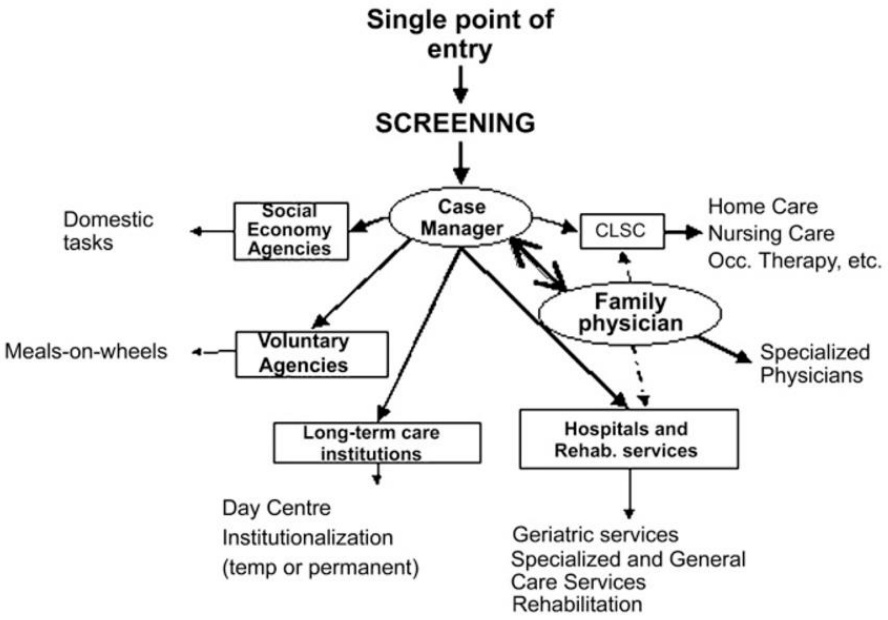
2.2.2 Integrated care models for elderly and frail

Integrated care models organized for the elderly and frail represent another specific group of initiatives. This group of integrated care models is distinguished due to the high specificity of service individual needs that guide the design of care models and the extent to which care requires integration between health and social services.

PRISMA is a Canadian model designed to integrate service delivery for community-dwelling people with moderate-to-severe impairment, who need coordination between two or more services *(33)*. The aim of the model is to preserve the functional autonomy of individuals. The model is designed to serve as a single entry-point to the system and to coordinate care across a network of different providers (Fig. 5). Case-management and the use of computerized charts are essential components for coordination *(13)*.
According to the model, integration is achieved through an established joint governing board of health and social care. The board defines the strategy, allocates resources to the network and manages provider groups. An assessment of the impact has shown that the PRISMA

model sustained the functional stability of individuals, decreased the extent of unmet needs and reduced the burden placed on carers. Individuals enrolled to the PRISMA programme also decreased their risk of hospital readmissions *(34)*.

Fig. 5. The PRISMA model of Integrated Service Delivery System



CLSC - Centre local de services communautaires (Local community services centre)

Source: *(35)*

To overcome fragmentation of care for older people the borough of *Torbay in England* has established five integrated health and social care teams. The teams are organized according to territorial principles and are aligned with general practices in the same localities. The model targeted elderly patients with multimorbidities, who require intensive support from community matrons *(13)*. The model employs health and social care coordinators, who act as the single point of contact within each team. Similar to PRISMA, Torbay Care Trust was established as a joint health and social care board with pooled budgets. Budgets are allocated according to the needs of population and are not restricted to certain types of care. Proactive discharge planning and transitional care have allowed Torbay's model to achieve performance improvements, such as reductions in average length of hospital stay and hospital readmissions *(36)*.

Integrated care models targeting small groups of community-dwelling older people were implemented by two Italian municipalities of Rovereto and Vittorio Veneto. In order to integrate health and social services in a continuum of care, case managers where introduced *(37)*. Similar to abovementioned models targeted at elderly and frail, these models focused on case management and multidisciplinary teams with a single entry point. During the first entry to the system a geriatric assessment was performed with the subsequent provision of community-based medical and social services *(37)*.

2.2.3 Disease-specific integrated care models

Some countries have developed models aimed to provide better integration of care for people with certain diseases and long-term conditions such as diabetes mellitus, cardiovascular diseases, COPD and bronchial asthma. The following are examples of several such models.

Chains of care is an integrated care model developed in Sweden with the aim of linking primary, hospital and community care through integrated pathways based on local agreements with between providers *(38)*. Typical chains of care include screening element in a primary care centre, treatment plans developed in specialist centre and rehabilitation provided in community *(39)*. Contractual agreements and alignment of incentives that enable efficient use of resources are distinctive features of the Swedish model.

Managed clinical networks were developed in Scotland under the vision of "linked groups of health professional and organizations from primary, secondary and tertiary care, working in a coordinated manner, unconstrained by existing professional and health board boundaries to ensure equitable provision of high quality clinically effective services" *(40)*. The model is a virtual integration that puts patients at the centre to enhance access to services and decrease variations in the quality of care. Active management of patients has been achieved by ensuring the more efficient use of the health workforce.

Starting in 1993, health reforms have introduced structural frameworks to enable the development of integrated care in Germany *(41,42)*. The first comprehensive effort to implement a programme of integrated care to address fragmentation and lack of coordination across levels in the German health system was the introduction of disease management programmes (DMPs) in 2002. DMPs are standardized nationwide programmes for individuals with chronic conditions introduced based on a regulatory top-down framework *(42,43).* The Federal Insurance Office defines them as "the coordinated treatment and care of patients during the entire duration of a [chronic] disease across boundaries between providers and on the basis of scientific and up-to-date evidence" *(42)*. DMPs were devised to foster principles of best evidence-based treatment, promotion of service delivery across levels of care, patient self-management and the introduction of new quality assurance mechanisms *(44)*. Importantly, they have been implemented in the context of existing health service delivery structures in Germany *(42)*.

While enrolment in DMPs for patients and providers occurs on a voluntary basis, enrolled patients are expected to play an active role in formulating and adhering to treatment goals based on shared decision-making. Patients are also obliged to participate in disease-specific education and self-management programmes. Participating providers must comply with defined training and infrastructure requirements *(44)*. General practitioners (GPs) usually serve as care coordinator ensuring that treatment and patient pathways are consistent with evidence-based DMP guidelines. Participation in DMP requires that providers actively participate in quality circles and regularly attend continuous medical education trainings. DMPs have enhanced the role of GPs in chronic care and contributed to a clear definition of provider roles across the continuum of care *(44)*. DMPs also encompass IT-supported documentation and patient information, shared-decision making and patient education *(45)*.

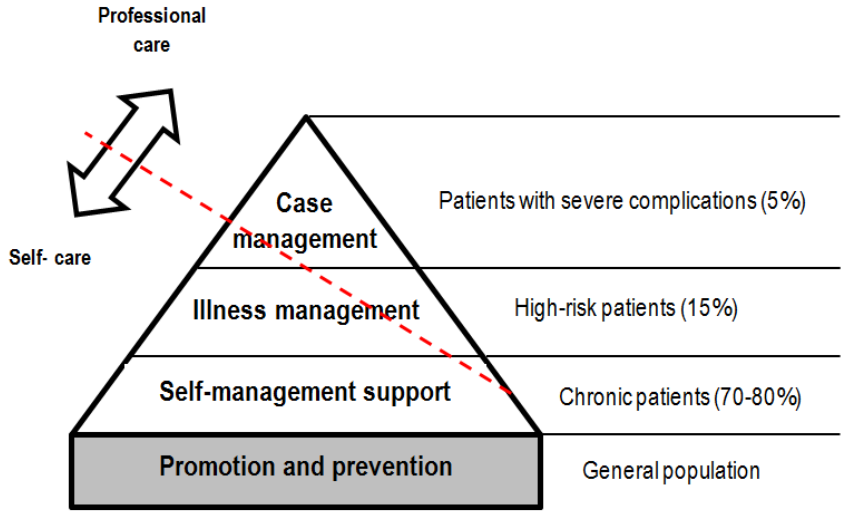
2.3 Population-based models

2.3.1 Kaiser Permanente

Kaiser Permanente (KP) is one of the largest health maintenance organizations in USA, accounting for more than 9.6 million members in eight regions of the country *(46)*. KP is a virtually integrated system consisting of three interrelated entities: a non-profit health plan that bears insurance risks (Kaiser Foundation Health Plan), self-governed for-profit medical groups of physicians (Permanente Medical Groups), and a non-profit hospital system (Kaiser Foundation Hospitals). Permanente Medical Groups and Kaiser Foundation Hospitals share a global budget. All three components hold mutual exclusivity towards purchasing and providing services and are unified by a common mission, representing a mixture of systemic and normative integration.

KP model of integrated care is based on stratification of the population and supply of different type of services according to needs. In the KP model, the population receives promotion and prevention services with the aim to control exposure to risk factors; the majority of chronic care patients receive support for self-management of their illness and high-risk patients receive disease and case management, which combines self-management and professional care. The stratification model is presented in the well-known Kaiser Pyramid (Fig. 6). One of the prominent adaptations of this stratification model is the King's Fund pyramid, which extends beyond health care and stratifies populations according to their health and social needs *(47)*.

Fig. 6. Extended Kaiser Pyramid



Source: Adapted from *(47)*

Integration within the KP model is focused on chronic care and multispecialty practice[4], rather than primary and secondary care. The core components to the KP model put emphasis on prevention, self-management support, disease management and case management for members with multiple conditions *(13)*. A crucial component that has defined the success of the KP integrated care model is that all entities within the KP group are mutually accountable for a patient's outcomes and positive patient experience and provider incentives are linked to quality of care and patient satisfaction. In this regard, an

[4] Multispecialty clinical practice are groups where generalists work alongside specialists to deliver integrated care

episode of acute hospital admission or readmission is seen as failure of the entire system. Active management of patients in hospitals is ensured through clearly defined and evidence-based clinical pathways and protocols. In doing so, the KP model was innovative in creating new professional groups such as hospitalists[5], discharge managers, various nurse profiles and care coordinators, allowing the efficient use of human resources and seamless transitions of care between settings.

Another crucial element of the KP model is overcoming information asymmetry and fragmentation between providers through the introduction of its own extensive information system - HealthConnect Programme. It allows providers within the KP group to access both inpatient and ambulatory patient records, as well as facilitates patient self-management allowing patients to access their records, make appointments and order prescription refills. Adopting the clinical governance strategies and continuous focus on performance improvement allows KP model to be sustained and evolve over time.

2.3.2 Veterans Health Administration

The Veterans Health Administration (VA) is a health system that provides integrated services to older people with chronic conditions in the USA. The VA employs physicians, owns and runs hospitals, medical offices and manages services within its network. Transformed from a hospital-based system, the VA currently consists of 21 regionally based integrated service networks. The structural changes were guided by the assumption that gains in effectiveness and efficiency can be achieved through better coordination between facilities, the synergy of resources and provision of care in the most appropriate settings *(48)*. Resources received from the federal government are not allocated to facilities but rather to networks – a mechanism through which service integration and shared accountability are achieved.

Table 3. Example measures within VA performance monitoring system

Value domain	Representative measures
Quality (effective, safe)	▪ Prevention index (immunization, cancer and substance use screening) ▪ Chronic disease index (heart, lung, endocrine diseases, including heart failure, COPD, diabetes) ▪ Palliative care index (pain screening and management)
Access (timely)	▪ Wait times for new primary care appointments ▪ Wait times for new specialty care appointments ▪ Percentage of patients seen within 20 minutes of scheduled appointment
Satisfaction (patient-centred)	▪ Perception of quality as very good or excellent ▪ Perception on Picker-based satisfaction survey
Function (patient-centered)	▪ Percentage of spinal cord injury patients discharged to independent living ▪ Percentage of homeless patients discharged to independent living
Community health (equitable)	▪ Accreditation of research programs ▪ Learner perception survey
Cost-effectiveness (efficient)	▪ Days in accounts receivable and other fiscal measures ▪ Value equation

Source: adapted from *(48)*

A transformative vision and change management have been a cornerstone in achieving integration within the VA network. A distinctive feature of the VA system is the well-praised culture of measurement and reporting which supported the mechanisms of accountability and continuous performance improvement. Measures are determined by groups of indicators

[5] Physicians whose primary professional focus is the general medical care of hospitalized patients

distributed according to several value domains, which are closely monitored in each of the networks (Table 3).

The VA model has put a great deal of effort in organizing care processes around patients' needs and enabling patient self-management through investments into supportive information technology. Much of the transformations were achieved by virtue of fostering clinical governance and the VA's own health service research.

2.3.3 Integrated care in Basque country

Integrated care in the Basque country has emerged with the launch of *Strategy to tackle the challenge of chronicity in the Basque Country,* in 2010 *(47)*. The strategy introduced integrated care approaches to transform health services delivery to improve care for chronic patients. Basque integrated care strategy was developed with acknowledgment of the interdependencies between primary care, social services and hospitals to achieve better outcomes among patients with chronic conditions.

Two approaches for integrated care were used in Basque country. A bottom-up implementation approach focused on clinical and functional integration that promoted coordination of care processes between primary and secondary care. An organizational integration was applied by merging hospital and primary care structures under one single organization – Integrated Healthcare Organizations (IHOs) *(49)*. Currently, the Basque country accounts for 13 IHOs with catchment areas from 30 000 to 400 000 persons.

Simultaneous activation of all levels of the system and the development of new professions that facilitate the delivery of integrated care are important features of this model. IHOs in Bidasoa have established Units for Continuity of Care (CCU) to treat high-risk patients with co- and multimorbidities. The CCUs use individual continuity of care plans to improve coordination across providers. CCUs are staffed with designated referral internists responsible for admission and stabilization of chronic patients and with *liaison nurses* who support patients' discharge and transition from hospital to home where they will then be followed-up by their GP. Referral internists work in close collaboration with GPs in care planning outside the acute episodes.

The development of tools and strategies that enable patient education to manage their own disease has been another success factor of the Basque integrated care strategy. Shared medical records and a new health information system developed together with users have facilitated coordination between providers. Performance measurement included tracking of specific indicators such as hospital admissions and readmissions for ambulatory care sensitive conditions have enabled a means to showcase the positive implications on patient outcomes and economic savings. This, in turn, was an essential component in overcoming stakeholder resistance and ensuring sustainability of the initiative.

Section three: Synthesis of evidence

This section provides a synthesis of the reviewed integrated care model components and combines it with findings of the similar analyses *(7,13,50,51)*. Notably, it aims to support the pragmatic understanding of the EFFA IHSD and assist in its practical application along other tools in the Frameworks' implementation package *(52)*.

Literature review presented in this document has demonstrated that integrated care models have developed as an imperative to respond to the increasing chronicity and co-morbidity in population. Most of the described integrated care models have emerged as articulated interventions intended to improve care for patients with chronic conditions, multimorbidities, and patients from specific groups such as the elderly and frail, making them perhaps the most natural entry point for introducing and piloting integrated care models.

The need for the integration of care across providers, settings and sectors directly correlates with the growing burden of chronic diseases and increasing demand for coordination across providers in health and social sector. Leutz *(53)* argues that the more severe demands are in terms of needs corresponds to an increase in the introduction of integrated care models. The identification of population needs, therefore, should be a starting point in developing any integrated care strategy. For example, the needs of elderly and frail populations in integrated care models like PRISMA and Torbay were beyond the scope of health sector resulting in integration with the social sector. Aligned with the vision set out in the EFFA IHSD, integrated care should only be judged successful if it contributes to better care experiences and improved care outcomes *(54)*.

One of the most pressing concerns in adopting integrated care models in practice is an understanding of the extent to which systems should seek to develop new organisational solutions. A typical challenge faced by the reviewed integrated care models suggests that organizational and functional integration did neither guarantee clinical integration at provider level, nor was sufficient to achieve it. For example, a study by McAdam *(55)* of integrated health care organisations in the USA and Canada found that at least half of them were not providing better coordinated care to clients, but were integrated only through acquiring new service lines or merging their operations.

In order to succeed, integrated care models should rely on a set of components and delivery strategies *(56,57)*. The components associated with successful integrated care models include enabling patient engagement and self-management support, developing multi-professional working culture, adopting evidence-based clinical pathways and protocols, aligning incentives, effectively managing resource, continuously monitoring and improving performance, and investing in supporting information technologies. In general, multicomponent approaches can be characterized as the optimization and innovation of service delivery processes *(4)*.

Nonetheless, in order to sustain transformations over time, integrated care models require actions that span from organizational, functional, professional and service delivery levels up to transformations on system level. For example, the adoption of multidisciplinary approaches goes beyond the organization of providers and requires alignment of health workforce policies at the system-level. Similarly, adjustment of incentives at the organizational level requires adjustment of wider health system financing mechanisms. These findings are echoed by the findings of the study conducted by the Health Service Management Centre at the University of Birmingham, which concluded a set of common essential features that serve as prerequisite to the success of integrated care models *(58)*:

- **common cause**, i.e. understanding the need to change from a population health perspective, often driven by a 'burning platform' of rising demand but limited resources

- **common vision and strategy**, which is a process inclusive of all agencies, including local people, to develop clear aspirations, measurable goals and time-scales for change

- **joint funding and planning** with a clear focus on shared outcomes and deliverables, resource/reward agreements linked to group performance

- **joint delivery** with strong leadership, high trust, clear governance arrangements, effective and dedicated managerial resources, phased in over time

- **evaluation** so that outcomes can be assessed to see if goals are being met (often overlooked)

- **quality improvement process** through developing a learning organization by using data and information to support reviews of performance and instigate changes and decisions

Analogous findings are presented in the concept of the Integrated Health Service Delivery Networks developed by Pan American Health Organization *(59)* (Annex 1), findings of the EU-funded INTEGRATE project *(50)* (Annex 2) and the review conducted by the King's Fund *(51)* (Annex 3). Each highlights the crucial importance of a health system's approach in the design and delivery of integrated care models.

In view of the analysed evidence, it becomes clear that establishing integrated care is a multifaceted and long-term process. The review found difficulties in showcasing the causality between the delivery of integrated care and outcomes. There are many reasons for this. Firstly, in the context of integrated care it is not possible to effectively separate multicomponent strategies that are needed to achieve results. Secondly, the criteria for assessing the success of integrated care models are not necessarily specific or measurable. Lastly, there are few opportunities for making comparisons with alternative models or control cases. Importantly, the transformation of health services delivery towards integrated care requires an understanding of the process of change itself. For example, the PCMH model *(60)* shows that implementation of integrated care models has been beset by a range of key implementation challenges such as:

- predominant professional cultures and behaviours, including physician reluctance to participate;
- continuation of fee-for-service payment mechanisms, when otherwise thinking about a population-health perspective;
- lack of scale in the size and scope of practices taking forward the idea;
- overreliance on electronic medical records as key to transformational change;
- lack of focus or prioritisation on the target population that would most benefit from interventions and too many peripheral responsibilities;
- lack of physician leadership and adequate managerial support;
- unrealistic expectations;
- resistance to change among care users and fear to lose existing entitlements.

Literature offers evidence that integrated care models should be introduced and implemented by means of a change management strategy. There is remarkable coherence

in the evidence for some key components of such a strategy *(11,51,61)*. For example, integrated care does not apply to business redesign processes that have been used elsewhere in health reform, so change management strategies need to recognise the key issue of its' multifaceted nature. This is further underlined by the many different generic technical components described above that are observed as core components of integrated care. However, there does appear to be some guidance on the first steps required to make change happen; specifically, development of a common vision should be based on a clear articulation of the population's needs in local communities, which then can develop into a shared strategy for change *(13,62,63)*. It is clear that even these first steps for integrated care require careful planning and that the process of change needs strong leadership and good management support.

Final remarks

In the absence of a unifying definition and an overarching approach, this document has attempted to consolidate and align evidence on integrated care. It provides an analysis of definitions and components that challenge or support integrated care. In doing so, it delivers a synthesis of generic considerations when designing and implementing integrated care models.

Recalling the key questions posed, this report finds the following:

1. **How can 'integrated care' be defined?** The concept of integrated care is strongly shaped by perspectives and expectations of various users in the health system, making a unified definition difficult. Interestingly, all definitions converge around highlighting the central role of population and individual needs. Furthermore, adopting a health system perspective, the use of the term 'integrated health service delivery' is seen as more reflective of the notion.

2. **What are the forms and taxonomies of integrated care?** Integrated care can be distinguished according to the processes of integration. However, dimensions are multiple including type, mechanism, level and intensity of integration. The multidimensional nature of integration points to the complexity in building integrated care models, as well as to the multiplicity of possibilities in their design.

3. **What are the commonly known models of integrated care?** Reviewed literature shows a wealth of implemented and evaluated integrated care models that range from individual and disease-specific models to models that embrace entire populations. Individual integrated care models include case management, individual care planning, patient-centred medical home and personal health budgets. Group and disease specific models include CCM, disease management programmes and integrated care models for elderly and frail. Population-based models include those implemented by KP, VA and Basque country.

4. **How can findings of this review inform an understanding and practical application of EFFA IHSD?** Horizontal analysis of evidence on integrated care models allows for consolidating a pool of generic considerations in designing and implementing integrated care strategies such as the importance of designing care around population needs, aligning wider health system functions and developing a change management strategy.

In conclusion, while it has been possible to identify general principles and core components, it cannot be concluded that one model best supports integrated care *(51)*. Any integrated model development is strongly contextually-bound, nearly impossible to replicate and can only be successful if it does account for unique needs and characteristics of the population it aims to serve.

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Annexes

Annex 1. Domains and essential attributes for the development of integrated health service delivery networks

Domain	Essential attribute	Level of progress in the attributes that make up the Integrated Health Service Delivery Network		
		I Fragmented Network	II Partially integrated network	III Integrated network
Model of care	1. Population and territory	No definition of population/territory under its responsibility	Defined population/ territory under its responsibility, but with limited knowledge of the health needs of this population	Defined population/ territory under its responsibility and extensive knowledge of the health needs of this population, which determine the supply of health services
	2. Service delivery	Non-existent, very limited or restricted to the first level of care	Includes all or most levels of care, but with high predominance of personal health services	An extensive network of health care facilities that includes all levels of care and provides and integrates both personal and public health services
	3. First level of care	Predominance of vertical programs with no integration or coordination	Acts as a gateway to the system but with very low capacity to resolve health problems and poor integration of services	Acts as a gateway to the system, integrates and coordinates care, and meets the majority of the population's health needs
	4. Specialized care	Deregulated access to specialists	Regulated access to specialized care, but predominance of hospitals	Delivery of specialized services is done preferably in non-hospital settings
	5. Coordination of care	No coordination of care	Existence of coordination mechanisms, but that do not cover the entire continuum of care	Existence of coordination mechanisms throughout the entire continuum of care
	6. Focus of care	Centred on disease	Centred on the person	Centred on the person, the family and the community/ territory

Domains and essential attributes for the development of integrated health service delivery networks *(continued)*

Domain	Essential attribute	Level of progress in the attributes that make up the Integrated Health Service Delivery Network		
		I Fragmented Network	II Partially integrated network	III Integrated network
Governance and strategy	7. Governance	No clear governance function	Multiple instances of governance that function independently of each other	A unified system of governance for the entire network
	8. Participation	No instances for social participation	Instances for participation are limited	Broad social participation
	9. Intersectoral approach	No links with other sectors	Links with other social sectors	Intersectoral action beyond the social sectors
Organization and management	10. Management of support systems	Non-integrated management of support systems	Integrated management of clinical support but without integration of the administrative and logistical support systems	Integrated management of the clinical, administrative and logistical support systems
	11. Human resources	Insufficient for the needs of the network	Sufficient, but with deficiencies in the technical competencies and commitment to the network	Sufficient, competent, committed and valued by the network
	12. Information systems	No information system	Multiple systems with no communication among them	Integrated information system that links all network members with data disaggregated according to pertinent variables
	13. Performance and results	No measurement of performance and results	Measurement of performance centered on inputs and processes	Measurement of performance centered on health outcomes and user satisfaction

Domains and essential attributes for the development of integrated health service delivery networks *(continued)*

Domain	Essential attribute	Level of progress in the attributes that make up the Integrated Health Service Delivery Network		
		I Fragmented Network	**II Partially integrated network**	**III Integrated network**
Financial allocation and incentives	14. Funding	Insufficient and irregular	Adequate financing but with unaligned financial incentives	Adequate funding and financial incentives aligned with network goals

Source: PAHO. 2011. Integrated Health Service Delivery Networks: Concepts, Policy Options and a Road Map for Implementation in the Americas. Washington, D.C.: PAHO.

Annex 2. Overview of the project INTEGRATE findings

Project INTEGRATE is a research project initiated in 2012 within the European Union Framework Programme 7 with the purpose of understanding how to best build integrated systems of care through a comparison of different approaches (e.g. disease and non-disease based) in different country contexts (Borgemans et al 2014). As part of the design of the case methodology, a systematic review of the evidence for the successful adoption of integrated care was undertaken. As a result, a composite list of 22 key variables for the successful development of integrated care was defined:

1. Leadership at the national, regional and local level of care:
    a. macro-goals of care
    b. health in all policies
    c. evaluation of integrated care policies against attributes of high quality integrated care
    d. clinical leadership
    e. standardization of the system's gatekeeper role
    f. regulation of access to specialized care
2. Data on chronic illnesses
3. Adequate financing system linked with quality improvement
4. An adequate workforce (in terms of numbers)
5. An adequate workforce (in terms of competencies and distribution)
6. Essential and new pharmaceuticals and medical devices
7. Investments in health services research
8. Roles of actors and their added value to the care process are defined (primary, secondary, tertiary and social care)
9. Revision of professional roles wherever appropriate
10. Coordination (structures) and ‘shared-care protocols’
11. Access to expertise to help with changes
12. Project managers (owners) and solid project management
13. Evidence-based guidelines
14. [Clinician] [post-graduate] education
15. Decision aids to patients
16. Reminders to clinicians and patients
17. Techniques for quality control: audit and feedback
18. Patient education
19. Patient empowerment
20. Intelligence systems for data collection
21. Computerized clinical support systems
22. Interactive health communication applications for patients

Source: Borgermans L, Goodwin N, Vrijhoef B, Ovretveit J, Calciolari S. 2014. Project INTEGRATE: A conceptual background on integrated care for chronic conditions (unpublished paper submitted as deliverable to European Commission).

Annex 3. Key lessons for the successful adoption of integrated care

System level

- Recognise the importance of addressing this agenda of integrated care for frail older people
- Provide stimulus through funding or other means to support the development of local initiatives to improve care for this group of people
- Avoid a top-down policy that requires structural or organisational mergers
- Remove barriers that make it more difficult for localities to integrate care, such as differences in financing and eligibility

Organizational level

- There is no single organisational model or approach that best supports integrated care
- The starting point should be a clinical/service model designed to improve the care that is provided rather than an organisational model with a pre-determined design
- It takes time for approaches to integrated care to develop and mature, with most programmes constantly evolving
- Fully integrated organisations are not the (end) goal

Functional level

- Success appears to be related to good communication and relationships between those receiving care and the professionals and managers involved in delivering care
- Greater use of ICT is potentially an important enabler of integrated care, but does not appear to be a necessary condition for it
- Building relationships to support integrated care requires time to build social capital and foster trust

Professional level

- Professionals need to work together in multidisciplinary teams or provider networks – generalists and specialists, in health and social care
- Within teams, professionals need to have well-defined roles, and work in partnership with colleagues in a shared care approach
- In most of the case study programmes, care co-ordination was being delivered alongside rather than by primary care physicians. This suggests that patients with complex needs that span health and social care may require an intensity of support that is beyond what primary care physicians can deliver.

Service level

- A number of common elements in the design of the care process at a service level appear to be important. These include:
  — holistic care assessments
  — care planning
  — a single point of entry
  — care co-ordination
  — the availability of a well-connected provider network that can facilitate access to the necessary support, particularly for self-management

Key lessons for the successful adoption of integrated care *(continued)*

Personal level

- All case studies had a specific focus on working with individuals and informal carers to support self-management
- Continuity of care and care co-ordination to meet individuals' specific needs is important and highly valued
- Personal contact with a named care co-ordinator and/or case manager is more effective than remote monitoring or telephone-based support

Source: Goodwin N, Sonola L, Thiel V, Kodner D. 2014. Coordinated care for people with complex chronic conditions. Key lessons and markers for success. The King's Fund, London.

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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