

Measuring integrated care at the interface between primary care and secondary care: a scoping review

Primary care
and secondary
care

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Abstract

Purpose – In many healthcare systems, health policy has committed to delivering an integrated model of care to address the increasing burden of disease. The interface between primary and secondary care has been identified as a problem area. This paper aims to undertake a scoping review to gain a deeper understanding of the markers of integration across the primary–secondary interface.

Design/methodology/approach – A search was conducted of PubMed, SCOPUS, Cochrane Library and the grey literature for papers published in English using the framework described by Arksey and O'Malley. The search process was guided by the "Preferred Reporting Items for Systematic Reviews and Meta-Analyses" (PRISMA).

Findings – The initial database search identified 112 articles, which were screened by title and abstract. A total of 26 articles were selected for full-text review, after which nine articles were excluded as they were not relevant to the research question or the full text was not available. In total, 17 studies were included in the review. A range of study designs were identified including a systematic review ($n = 3$), mixed methods study ($n = 5$), qualitative ($n = 6$) and quantitative ($n = 3$). The included studies documented integration across the primary–secondary interface; integration measurement and factors affecting care coordination.

Originality/value – Many studies examine individual aspects of integration. However, this study is unique as it provides a comprehensive overview of the many perspectives and methodological approaches involved with

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evaluating integration within the primary–secondary care interface and primary care itself. Further research is required to establish valid reliable tools for measurement and implementation.

Keywords Implementation, Integrated care, Primary care, Secondary care

Paper type Literature review

Introduction

Integrated care is a model of care within health systems and is considered a solution to the challenge of providing comprehensive, coherent and synergistic healthcare (Kodner and Spreeuwenberg, 2002; Valentijn *et al.*, 2013; Goodwin, 2016). However, a lack of consistently applied definitions makes evaluating integrated care difficult, and there is a scarcity of “standardized, validated tools” used to evaluate integration outcomes (Armitage *et al.*, 2009; Lyngso *et al.*, 2014; Strandberg-Larsen and Krasnik, 2009). Ambiguity and inconsistency around the terms, coupled with diverse outcome measures among integrated systems means uniform conclusions cannot be made about ideal integrated care model types and ways to evaluate each aspect of them (Lyngso *et al.*, 2014).

Nonetheless, past efforts have been made to develop effective integrated care assessment tools. For instance, with the aims of (1) identifying principles and factors facilitating effective care integration and (2) assessing the performance of integrated care models, in 2017 the European Commission’s Expert Group on Health Systems Performance Assessment produced the “Blocks” report (Reynders, 2017). The report found that measuring integration is not the same as measuring integrated care performance. The report also establishes the term “building blocks” to monitor elements of integrated care. It describes the need to develop indicators that are specific to integrated care and stratify them to assess structures, processes and outcomes (Reynders, 2017). The Primary Health Care Impact, Performance and Capacity Tool (PHC-IMPACT) meanwhile is another integrated care assessment initiative. It uses numerous evidence based, mixed method indicators and pre-identified “Tracer conditions” to measure current integrated care structures, their performance and the effectiveness of primary healthcare in a region to inform its policy decision-making and aims to work towards global universal healthcare (Barbazza *et al.*, 2019; Tello, 2019). Another initiative is the Scaling Integrated Care in Context (SCIROCCO) Project (Grooten *et al.*, 2019). The project involved a study examining readiness for integration in health systems across 25 European Union sites. The “maturity” of healthcare systems and each site’s ability to implement integrated care was assessed using a validated 12-dimensional tool (Grooten *et al.*, 2019). The project has now concluded, and a new project is underway – “SCIROCCO Exchange”, which has refined the model for assessment and aims to support health systems in scaling-up integrated care (SCIROCCO Exchange) (Pavlickova, 2019).

Ireland’s healthcare system is currently in transition, as it endeavours to provide universal integrated healthcare, which is primary care centred with an emphasis on community care and an integrated system to cater for patients at all stages of life from disease prevention to diagnosis and disease management (Burke *et al.*, 2018). Previous research in Ireland has identified the primary–secondary care interface as a problem area. Darker *et al.* reported that barriers to effective chronic disease management included difficulty in consulting hospital specialists and poor communication between primary care and hospitals teams (Darker *et al.*, 2015). Further research reported that the relationship between primary and secondary care was considered “disconnected” and “fragmented” by almost half of the participants with some key issues relating to inadequate discharge summaries, communication difficulties with hospitals and difficulty accessing assessment units (Kennedy *et al.*, 2016). A 2017 report “A Future Together” highlighted general practitioners (GPs)’ concerns with inefficient communication systems, time consuming referral pathways and difficulty liaising with hospital staff (O’Dowd *et al.*, 2017).

2020 sees the introduction of an “Integrated Care Programme for the Prevention and Management of Chronic Disease” (ICPCD) to replace the “diabetic” and “heartwatch” initiatives. This scheme will focus on increased formal general practice led care for a number

of chronic diseases, which are a great burden for patients. Healthcare is increasingly being delivered through primary care, and there is an expected 46% rise in demand for primary care over the next 15 years ([Health Service Executive \(HSE\), 2018](#)).

Given the changing landscape of general practice in Ireland, it is timely and indeed necessary to evaluate the current relationship between primary and secondary care. As such, this review aims to examine the current literature to establish what information has been used to measure and assess integrated care at the interface between primary care and secondary care and thereby identify issues which may have an impact on future assessment of integrated practice at the primary–secondary care interface.

Methods

To outline the extant literature, its key concepts and the gaps in the research, we conducted a scoping review using the six-stage framework described by Arksey and O'Malley ([Arksey and O'Malley, 2005](#)).

Stage 1: Identifying the research question

Our objective was to examine the interface between primary and secondary care to establish what markers could be used to evaluate integration between primary care and secondary care. The following research question was formulated: *What information has been used from primary care to measure/assess integrated care at the interface between primary care and secondary care?*

Stage 2: Identifying relevant studies

A preliminary search of key databases was performed, and a reading list was generated. From this, medical subject heading (MeSH) terms were generated. Further adjustment of terms and inclusion of terms identified in the literature as international synonyms for integrated care were included in the search. A search of PubMed, SCOPUS and Cochrane was performed. The search terms were classified by category and results required reference to one or more search term in each category (See [Figure 1](#)). We chose not to limit the study search by year as research on integrated care assessment is limited, and we thus anticipated that a wide temporal focus would facilitate better inclusion of studies relevant to our research aims. Lastly, several additional articles of relevance were identified by “hand searching” for the grey literature on prominent health websites and databases using Google search functions.

Stage 3: Selecting studies

Thereafter, a title and abstract review was conducted, followed by full-text reviews. The “Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)” flow diagram below ([Figure 2](#)) summarises the selection pathway. The literature was included irrespective of study design/methodology. This broad inclusion criterion facilitated the inclusion of a variety of study types and reviews. Endnote X9 software was used to track studies and manage citations. Studies were included if they were considered to examine the research question, and if they were published in the English language. Studies were excluded if they reported only patient perspective/satisfaction or focussed on specific individual conditions. All duplicate articles were excluded. Findings were reviewed by a second reviewer, and a finalised list of studies was agreed.

Stage 4: Charting the data

To facilitate comparison and thematic analysis, the following data were extracted from the articles:

- Author(s), year of publication and title,

Figure 1.
Search strategy

((measure OR evaluate OR measurement OR evaluation OR metrics OR markers)
AND
("Doctor Experience" OR "Doctor Perspective" OR "Doctor satisfaction" OR "Doctor perception" OR "Doctor feeling" OR "Doctor view" OR "Physician Experience" OR "Physician Perspective" OR "Physician satisfaction" OR "Physician perception" OR "Physician feeling" OR "Physician view" OR "GP Experience" OR "GP Perspective" OR "GP satisfaction" OR "GP perception" OR "GP feeling" OR "GP view" OR "Practitioner Experience" OR "Practitioner Perspective" OR "Practitioner satisfaction" OR "Practitioner perception" OR "Practitioner feeling" OR "Practitioner view")
AND
(interface OR "primary secondary" OR integration OR "Primary secondary integration" OR "Primary secondary interface" OR "care pathway" OR "chains of care" OR "care coordination" OR "care transition" OR "clinical integration" OR "collaborative care" OR "cooperative care" OR "coordinated care" OR "coordination of care" OR "cross sectoral care" OR "financial integration" OR "functional integration" OR "horizontal integration" OR "integrated care" OR "integrated service network" OR "integration of care" OR "intersectoral care" OR "intrasectoral care" OR "linked care" OR "physician system integration" OR "provider system integration" OR "seamless care" OR "service network" OR "shared care" OR "transitional care" OR "transition of care" OR "transmural care" OR "vertical integration" OR "virtual integration" OR "whole system thinking" OR "continuity of care" OR "care continuity" OR "Shared care" OR "integrated care" OR "chronic care model" OR "managed care" OR "transmural care" OR "coordinated care" OR "seamless care" OR "comprehensive care" OR "comprehensive disease management" OR "continuity of care" OR "case management" OR "care management" OR "patient centred care" OR "collaborative care" OR "transitional care" OR "integrated delivery systems" OR "linked care")
AND
("gp" OR "general practice" OR "family medicine"))

- Study population,
- Journal/Publication,
- Setting,
- Study aim/topic,
- Study design and
- Major findings.

Stage 5: Collating, summarising and reporting results

An overview of the literature was detailed in a table summarising and charting the results (see [Table 1](#)).

Results
Studies identified

A total of 120 studies were examined; 112 were identified by data search and eight following review of key papers and journals. In total, eight duplicate papers were removed, leaving 112 articles to be screened. Following a title and abstract review, 86 studies were excluded as they

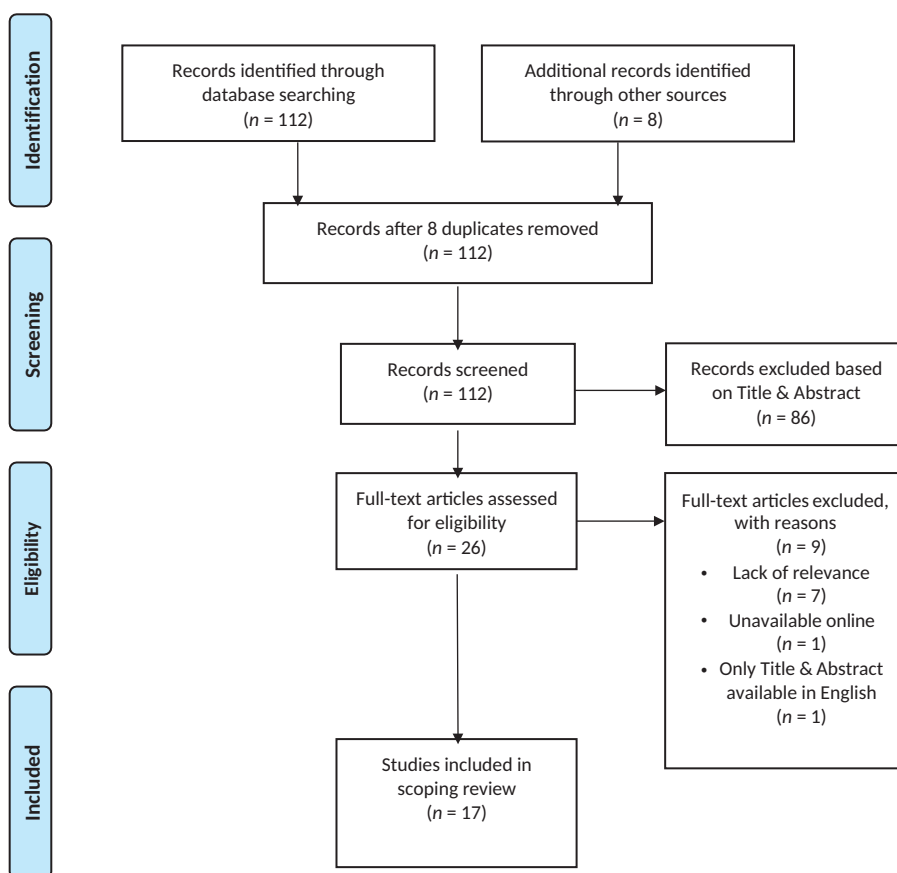


Figure 2.
Summary of papers
identified for study

were not relevant to the research question. The remaining studies underwent full text review and were analysed by a second reviewer. At this time, studies were removed based on unavailability ($n = 1$), language ($n = 1$) and lack of relevance ($n = 7$). A total of 17 studies were identified as relevant for analysis.

The 17 studies included ranged from 1993 to 2019 with the following geographical breakdown: USA ($n = 7$), United Kingdom ($n = 4$), Australia ($n = 4$), Denmark ($n = 1$) and Ireland ($n = 1$).

A range of study designs were identified including a systematic review ($n = 3$), mixed methods study ($n = 5$), qualitative ($n = 6$) and quantitative ($n = 3$).

Study populations included primary care physicians (PCPs) alone ($n = 9$), six studies examined the views of PCPs and others including practice staff ($n = 1$); eHealth IT specialists ($n = 1$); parents of patients ($n = 1$); hospital management ($n = 1$); physician specialists ($n = 1$); PCPs with patients and physician specialists ($n = 1$); one review included studies across a variety of domains and two study populations included health care management staff.

Studies examining integration across the primary–secondary interface. In total, eight studies assessed integration across the primary–secondary care interface: three were mixed methods studies, four qualitative studies and one systematic review. The studies focused on characteristics of successful integration, including communication, attitudes and education.

Table 1.
Included studies

Author(s)	Year	Study title	Study population	Journal/ Publication	Setting	Study aim/Topic	Study design	Major findings
1 Murphy <i>et al.</i> [37]	2017	Electronic discharge summary and prescription: improving communication between hospital and primary care	GPs (<i>n</i> = 13) and Chart data (<i>n</i> = 90)	Irish Journal of Medical Science	Ireland	To evaluate the effect of electronic discharge on GP satisfaction and accuracy of diagnosis Communication	Mixed methods, qualitative interview 13 semi-structured interviews and quantitative chart data	EDS has led to improved timelines and GP satisfaction with communication between hospital and primary care Coding is inaccurate
2 Close <i>et al.</i> [49]	2019	Longitudinal evaluation of a countrywide alternative to the quality and outcome framework in UK general practice aimed at improving person-centred, coordinated care	Practices involved (<i>n</i> = 55) patients, healthcare professionals practice managers and staff	British Medical Journal	The United Kingdom	To evaluate the deinstitutionalisation of QOFs	Mixed method study. Tools such as quantitative P3C-EQ, patient experiences P3C, practitioner P3C-OCT, organisational data, hospital statistics, emergency admission and data- interrupted time series Qualitative component: semi-structured interviews (not dealt with in this paper)	Initiative saved time Time was freed during consultation Time was freed for admin staff and GPs outside of consultation time Practice data showed a significant increase in organisational processes, stronger federation links and informal networks Increased MDT working, relocation of resources, changes to structure and timings of appointments No disbenefits were detected in admission data

(continued)

Author(s)	Year	Study title	Study population	Journal/ Publication	Setting	Study aim/Topic	Study design	Major findings
3 Lee <i>et al.</i> [38]	2018	Primary care practitioners' perceptions of electronic consult systems: A qualitative analysis	Primary care practitioners (<i>n</i> = 40) 20 DHS v 20 Non-DHS (Dept. of Health Services) (12 internists 17 family practice practitioners 11 advanced practice clinicians (<i>n</i> = 40) GPs (<i>n</i> = 24)	JAMA Internal Medicine	USA	To understand PCP perceptions of the results of eConsult initiation on PCP workflow, specialist access and patient care	Qualitative interviews	Four themes Access and timeliness of specialist care- variable shift of specialty care to PCP Relationship with specialist: all variable in response, both positive and negative
4 Fowler Davis <i>et al.</i> [47]	2018	Factors affecting decisions to extend access to primary care: results of a qualitative evaluation of general practitioners' views		British Medical Journal	The United Kingdom	To report GPs' views and experiences of an Enhanced Primary Care Programme (EPCP)	Qualitative interviews	Four main themes: receptivity to the aims of the EPCP; capacity to support integrated care teams; capacity to manage urgent care; value of schemes to enhance locality-based primary care's variable responses GPs were selective to benefit local demand without increasing their own workload

(continued)

Table 1.

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Author(s)	Year	Study title	Study population	Journal/ Publication	Setting	Study aim/Topic	Study design	Major findings
5 Bouamrane and Mair [36]	2014	A qualitative evaluation of general practitioners' views on protocol-driven eReferral in Scotland	GPs, 25 semi-structured interviews, one focus group with members of the Scottish Electronic Patient Record programme and one interview with a senior architect of the Scottish Care Information national eReferral system	BMC Medical Informatics and Decision making	UK	GP perspective on information management processes	Qualitative interviews/focus group. They conducted semi-structured interviews, and they analysed data using a framework based on DeLone and McLean's model of quality in information systems [53]	eReferral streamlines communication, improves transfer and immediate audit trail. Some felt templates cumbersome, while some felt were useful. GPs considered any benefits of eReferral greatly outweighed any disbenefits
6 Brousseau <i>et al.</i> [40]	2011	Nonurgent emergency-department care: analysis of parent and primary physician perspectives	Parents of children (26) and primary care physicians (20)	Pediatrics	USA	To better understand parental decisions to seek care for their children and physician perceptions of parents' decisions to seek non-urgent emergency department care	Qualitative interviews of 26 interviews of 21 female and 5 male parents were completed	Parents felt they acted appropriately. Physicians neither approved their decision nor felt the need to change

(continued)

Table 1.

Author(s)	Year	Study title	Study population	Journal/ Publication	Setting	Study aim/Topic	Study design	Major findings
7 Chen <i>et al.</i> [46]	2011	Patient care outside of office visits: a primary care physician time study	Primary care physicians ($n = 33$)	Journal of General Internal Medicine	USA	To describe primary care physicians' ambulatory patient care activities outside of office visits (AOVs) and their perceptions of the extent these AOVs substitute for visits and could be performed by support staff	Mixed methods, cross-sectional, direct observational study and Qualitative questionnaire	It was found that 20% of physicians' workday was spent on AOVs AOVs can substitute for some visits, which would otherwise occur approx. five visits per day Some tasks could be delegated to another staff member (15%) Policies needed to save costs, time and improve care Four themes: provider hassle, complex needs Improved access to care under managed care and individual providers disconnect from policy and evaluation
8 Chaudry <i>et al.</i> [45]	2003	Caring for patients under medicare mandatory managed care: perspectives of primary care physicians	14 physicians, 7 individual interviews, 7 focus groups and CEOs of 3 health maintenance organisations (HMO)	Qualitative Health Research	USA	Care coordination	Qualitative interviews	
9 Blakenen <i>et al.</i> [48]	2001	Evaluating general practitioners' views about the implementation of the enhanced primary care medicare items	GP ($n = 30$)	Medical Journal of Australia	Australia	Measuring barriers: use of EPC items, difficulties with implementation and suggestions for improving implementation	Qualitative interview	Five main topics: Time, Organisation, Communication, Education and Resources Difficulty incorporating items into daily practice without support EPCs need implementation and depend on other aspects of integration to succeed

(continued)

Table 1.

Author(s)	Year	Study title	Study population	Journal/ Publication	Setting	Study aim/Topic	Study design	Major findings
10 Southern <i>et al.</i> [42]	2001	Integration from the Australian GP's perspective	GPs (<i>n</i> = 208)	Australian Family Physician	Australia	GPs' perceptions about their role in relation to activities that support integration and what they are doing	Quantitative survey-based on the agreed focus group statements	GP responses relating to holistic individualised care were positive Statements about care- coordination scored low Rural GPs had more involvement with secondary care Many obstacles to integrated care were identified: policy and attitudinal, and financial incentives required infrastructure to support education GP dissatisfaction with communication GPs not notified of admissions: 84% Changes in patient condition: 87% Discharge: 75 % Poor access to results Changes in organisation and attitudes needed
11 Isaac <i>et al.</i> [39]	1997	The GP hospital interface: attitudes of general practitioners to tertiary teaching hospitals	GP 350	Medical Journal of Australia	Australia	To assess GP perceptions of liaison with two local tertiary teaching hospitals	Mixed methods survey, quantitative, qualitative open- and closed- questions were conducted as room for comments and questionnaire- based survey was conducted with a five point Likert scale	

(continued)

Author(s)	Year	Study title	Study population	Journal/ Publication	Setting	Study aim/Topic	Study design	Major findings
12 Gosden <i>et al.</i> [50]	2000	Capitation, salary, fee-for-service and mixed systems of payment: effects on the behaviour of primary care physicians	Four studies, 640 primary care physicians and more than 6,400 patients	Cochrane Database Systematic Review	The United Kingdom	Impact of diff methods of payment on clinical behaviour of GPs	Systematic review 2 RCTs 2 before and after designs	FFS resulted in increased GP visits, visits to specialist/ diagnostics/curative services but fewer hospital referrals and repeat prescriptions compared with capitation Compliance with visit numbers was higher and continuity of care was better with FFS
13 Tuzzio <i>et al.</i> [41]	2017	Design and implementation of a physician coaching pilot to promote value-based referrals to specialty care	Four primary care physicians and four coaches	The Permanente Journal	USA	To assess feasibility and acceptability of a coaching/ mentoring programme to evaluate specialty referral decisions	Mixed methods, qualitative evaluation, single-arm observational pilot study with four dyads of qualitative and quantitative evaluation (interviews)	(1) Peer-to-peer dialogue relieved isolation and was a vehicle to learn from each other (2) Reflection and acquiring new skills improved knowledge and decision-making capacity and main reasons for ref were clinical uncertainty and patient request. New strategies were developed for use (3) Lack of time was reported as a barrier to programme participation and to optimizing referrals (4) There was support for sustainability if supported

(continued)

Table 1.

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Author(s)	Year	Study title	Study population	Journal/ Publication	Setting	Study aim/Topic	Study design	Major findings
14 Grumbach <i>et al.</i> [51]	1998	Primary care physicians' experience of financial incentives in managed care systems	766 primary care physicians	New England Journal of Medicine	USA	Types of incentives for PCP in managed care systems	Quantitative questionnaire	pressure to limit referral, incentive via bonus If bonus, then more pressure was not to limit referral: this was felt compromised care Physicians with incentive based on productivity felt pressure to see more patients and felt this compromised care
15 Lyngso <i>et al.</i> [8]	2014	Instruments to assess integrated care: a systematic review	Systematic review of 23 articles, patients, health professionals, healthcare systems, organisational delivery systems and hospitals	International Journal Of Integrated Care	Copenhagen Denmark	Systematic review of instruments to assess integrated care	Systematic review	Eight organisational elements found (1) IT, information transfer/ communication an access (2) Commitment and incentives to deliver integrated care (3) Clinical care (4) Organisational culture and leadership (5) Education (6) Financial incentives (7) Patient focus (8) Quality improvement/ performance measure

(continued)

Author(s)	Year	Study title	Study population	Journal/ Publication	Setting	Study aim/Topic	Study design	Major findings
16 Michell and Burridge	2015	Systematic review of integrated	Systematic review	Australian Journal of Primary Health	Australia	To identify outcomes of different models	Systematic review	Few improvements in clinical outcomes
Zhang <i>et al.</i> [35]		Models of health care delivered at the primary–secondary interface: how effective is it and what determines effectiveness?	Patients with chronic complex illness, primary care doctors specialists and doctors			That integrate Specialist and primary care practitioners and characteristics of models that delivered favourable clinical outcomes		Improvement in process outcomes regarding disease control and service delivery (1) increased cost of primary–secondary integration No negative effects compared with usual care Six elements identified that were common to the models in integrated primary– secondary care (1) Interdisciplinary teamwork (2) Communication/ information exchange (3) Shared care guidelines or pathways (4) Training and education (5) access and acceptability for patients (6) viable funding model (continued)

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Table 1.

Author(s)	Year	Study title	Study population	Journal/ Publication	Setting	Study aim/Topic	Study design	Major findings
17 Gillies <i>et al.</i> [43]	1993	Conceptualizing and measuring integration: findings from the health systems integration study	12 systems examined healthcare admin, managers and hospital group board members	Hospital and health services administration	USA	Looks at 12 organised delivery systems	Existing literature review, quantitative measures of perceived functional integration, physician- system integration and clinical integration both horizontal and vertical were obtained using a 54 point Likert scale self- administered questionnaire	Some functional integration areas are positively associated with both physician-system and clinical integration that in turn are positively related to each other Perceived integration was found to be positively associated with perceived effectiveness

A systematic review by Mitchell *et al.* examined outcomes of models that integrate primary and secondary care (Mitchell *et al.*, 2015). This review examines the effectiveness of these models. Except for disease control, limited advances were reported in terms of patients' clinical outcomes compared with usual care. However, substantial improvements were noted in service-related process outcomes.

In their qualitative study, Bouamrane *et al.* reported that eReferral substantially improved communication between general practice and secondary care and noted that instant transfer of referral and the availability of an electronic audit trail were two key advantages over paper-based systems (Bouamrane and Mair, 2014). Interviews with 25 GPs reported benefits including the system being more user friendly ($n = 11$), referral transfers being more immediate ($n = 9$), clinical advice and referral guidance functions ($n = 5$), improved organisational work processes and patient management through the health service ($n = 8$) and sharing of electronic patient information across the health service ($n = 5$).

Murphy *et al.* conducted a mixed method study examining GP satisfaction with electronic discharge summaries and accuracy of ICD-10 coding by non-consultant hospital doctors (Murphy *et al.*, 2017). Overall satisfaction level with electronic discharge summaries was high (91–100%). List of diagnoses, treatments, procedures, GP information and follow up and discharge medications were all noted to be of key value to GPs. All were satisfied with electronic prescriptions and all found information regarding patients' medications that were stopped/ held useful.

Lee *et al.* examined PCP perceptions of electronic consult systems in relation to workflow, specialist access and patient care (Lee *et al.*, 2018). Many physicians reported that the systems resulted in timelier speciality input, improved scheduling, educational benefits and a positive change in relationship between specialists and physicians.

Isaac *et al.* also evaluated the interface through their mixed-method study reviewing attitudes of 350 GPs to tertiary teaching hospitals (Isaac *et al.*, 1997). In total, 93% were keen to see an extension of shared care. Ongoing concerns were communication and time. They found that 84% were not informed of patient admission or change in patient well-being, including death (87%) and discharge (75%). An area of concern was early discharges: where GPs were concerned for patient well-being (65%) and felt discussion was required prior to taking over responsibility for the patient.

The relationship between primary and secondary care was examined in a qualitative study by Brousseau *et al.* (2011). Parents' and PCPs' feelings regarding direct emergency department (ED) attendances were reviewed. In general, physicians approved of parents' decisions attend second level care directly. Physicians understood the potential reasons for attending ED, and neither PCPs nor parents felt that these non-urgent ED attendances were a "significant enough" breach in continuity of care to warrant changes in physician care practices (e.g. integrative initiatives directing such patients away from ED towards primary care).

A mixed methods study by Tuzzio *et al.* examined the impact of education at the interface in the form of "peer coaching" on specialty referrals (Tuzzio *et al.*, 2017). All participants reported benefit of peer discussion on patient care. All reported that they reflected on their referral decision- making and considered new approaches to referral and for managing patient expectations following the meetings. Time constraints were noted to be a barrier for optimising referrals.

In a quantitative study by Southern *et al.* participating GPs noted that they felt coordination between GPs and hospitals regarding patient management was sub-optimal. GPs also mentioned that hospital involvement in patient care was insufficient (Southern *et al.*, 2001). In this study, only 41% of GPs claimed that they were involved in an admitted patient's care, 18% reported being involved in discharge planning and a third mentioned receiving information about patient's hospital medication. A third of rural GPs were involved with hospital committees vs 8.4% of urban practitioners. Only 28% of GPs were linked to other

healthcare services by computer technology. Remuneration was cited as a barrier to integration by 22% of study participants.

Integration measurement. In total, two studies examined integration in general terms: one a quantitative study and one was a systematic review.

Lyngsø *et al.*, in 2014 published a systematic review examining instruments to assess integrated care (Lyngsø *et al.*, 2014). They found no generally agreed measurement instrument. A diverse combination of methods was found to have been used. Most studies looked at structural and process aspects of integration with only four studies examining all six criteria defined as central for a measurement tool. These criteria include a defined construct, theoretical framework, defined level of analysis, structural aspects, process aspects and cultural aspects. The three elements most commonly examined were the following: IT, information transfer, commitment and incentives and clinical care.

Gillies *et al.* looked at measuring integration in their quantitative study (Gillies *et al.*, 1993). They reviewed 12 organised delivery systems. Focus was put on the “perceptions of integration” based on the thought that improvements must first deal with the current zeitgeist. They report moderate integration at a functional level but at low levels of physician-system integration or clinical integration. There is a link reported between perceived integration and perceived effectiveness: that the better the coordination, the more effectual system is.

Factors affecting care coordination. The remaining seven studies identified several themes pertinent to care coordination including time, finances, resources and the value of GPs as stakeholders. They consisted of three qualitative studies, two mixed methods studies, one systematic review and one was a quantitative study.

A qualitative study by Chaudry *et al.* reports increased paperwork and administrative work associated with managed care (Chaudry *et al.*, 2003). Poor patient understanding was thought to contribute to the inappropriate use of services. Communication, complex needs and reimbursement were key concerns voiced by participants.

A time study by Chen *et al.* reports that 20% of a physician’s workday was spent on activities outside of office visits (AOVs) that in turn adversely impact care coordination (Chen *et al.*, 2011). They found that 38% of this time was spent on visit specific tasks (i.e. completing tasks generated during a consultation), and 62% were non-visit specific AOVs (phone calls 26%, follow-up diagnostics 22% and prescriptions 12%). It was thought that 15% of these tasks could have been completed by support staff.

Fowler Davis *et al.* examined GP views on Enhanced Primary Care Programmes (Fowler Davis *et al.*, 2018). Capacity to Support Integrated Care teams was one of the main themes. Many felt that the schemes did not enhance the workings of the multidisciplinary team (MDT). GPs were selective in their implementation to benefit their practice demand, without increasing their own workload.

A qualitative study by Blakeman *et al.* examines perceived barriers associated with delivering coordinated care (Blakeman *et al.*, 2001). They highlight the importance of time, organisation, communication, education and available resources. Barriers included poor links with MDT/secondary care, including delays and inadequate discharge documents, difficulty with contact, poor knowledge of services available, lack of understanding regarding roles and inadequate community services. It highlights that care coordination relies on the effectiveness of other forms of integration in order to achieved desired outcomes.

Directing resources towards coordinated care was the aim of the Somerset Practice Quality Scheme reported by Close *et al.*, in 2019 (Close *et al.*, 2019). Ultimately, time savings and MDT improvements were recorded, and decreased administrative work was appreciated by disincentivising quality and outcome framework targets (QOFs) and redirecting resources to target complex patients with multi-morbidities.

Gosden *et al.* conducted a systematic review in 2016 examining payment methods of physicians and the affects that this may have (Gosden *et al.*, 2000). It concluded that fee for

service (FFS) resulted in greater compliance with suggested attendances; more attendances at primary care, specialist care, diagnostic services but fewer secondary referrals and repeat prescriptions when compared with capitation. Greater continuity of care and improved compliance were reported among FFS participants.

Financial incentives were the focus of the quantitative study by [Grumbach *et al.* \(1998\)](#). They reported on the behaviour of physicians to tailor their management based on incentives. Of the 766 physicians involved in managed care programmes, 38% received an incentive/bonus. Pressure to limit referrals was reported by 58%, where 17% reported that this compromised care. Pressure to see more patients was reported by 75%, where 24% felt that this compromised care. Physician satisfaction was reported as lower when incentives were linked to productivity vs physicians for whom incentives were linked to quality of care.

Discussion

This study sought to develop understanding of how primary care has informed the measurement and assessment of integrated care at the primary–secondary care interface. It is clear from the literature that the measurement and assessment of integration needs to take into account several elements, dimensions and points of view. These include perspectives on primary–secondary care interactions and issues concerning management of primary care time, financial and human resources. Further, diversity of perspective is also evidenced by the fact that the studies examined in this review used a wide variety of methods including surveys, interviews, questionnaires, data analyses, literature reviews and observational techniques to assess integration. The methodological diversity used in this review's included studies shows that no single approach covers all aspects of integration but many cover individual elements of integration.

The finding that included studies examined integration from a wide variety of perspectives using a multitude of research techniques is not surprising as previous research has also demonstrated that this is often the case ([Barbazzia *et al.*, 2019](#); [Tello, 2019](#); [Burke *et al.*, 2018](#); [Darker *et al.*, 2015](#); [Pavlickova, 2019](#)). However, this study makes a valuable contribution to knowledge in the sense that it sheds new light on the diversity of perspectives and approaches within research examining integration in the primary care sector and the primary–secondary care interface.

The included studies' findings also have implications for understanding of how integrated care systems may be better evaluated in healthcare systems both in Ireland and internationally. One of the included studies was conducted in Ireland ([Murphy *et al.*, 2017](#)), and several studies were conducted in countries with socioeconomic dynamics, cultural backgrounds and healthcare systems like those in Ireland. Thus, this review's findings will likely prove useful with regards to answering questions posed by existing integrated care policy documents and initiatives in various countries ([Burke *et al.*, 2018](#); [Darker *et al.*, 2015](#); [Health, 2018](#)). Based on this review's findings, it is recommended that policymakers take the time to account for the multitude of professional perspectives within healthcare systems before implementing policy reform. Further, we recommend that policy focused evaluations standardise integration assessment tools as much as is possible to avoid the confusion resulting from methodological ambiguity evident among peer reviewed studies to date.

This study has several methodological strengths and limitations. Our adoption of Arksey and O'Malley's framework for instance was beneficial, as it facilitated greater rigour and transparency in the research process. Also, based on a review of the literature, a comprehensive set of search terms were gathered. Further, we feel the decision to not limit our literature search by year was justified as it facilitated inclusion of several valuable studies published prior to 2010 ([Chaudry *et al.*, 2003](#); [Blakeman *et al.*, 2001](#); [Southern *et al.*, 2001](#); [Isaac *et al.*, 1997](#); [Gosden *et al.*, 2000](#); [Grumbach *et al.*, 1998](#); [Gillies *et al.*, 1993](#)). Our search, however,

did not include all databases, which may have resulted in omission of some relevant studies, and we did not evaluate the study quality of the included literature. We also only included the literature published in English, which may have excluded other relevant studies.

Conclusion

It is clear that measurement and assessment of integration within the primary–secondary care interface and primary care itself is complex and involves giving voice to multiple perspectives. Further, understanding of these complexities may benefit from the application of standardisation within integrated care evaluation processes. Thus, the challenge ahead for Irish and international clinicians, researchers and policymakers lies in establishing valid reliable tools for assessment and then implementing them.

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References

- Arksey, H. and O'Malley, L. (2005), "Scoping studies: towards a methodological framework", *International Journal of Social Research Methodology*, Vol. 8, pp. 19-32.
- Armitage, G., Suter, E., Oelke, N. and Adair, C. (2009), "Health systems integration: state of the evidence", *International Journal of Integrated Care*, Vol. 9, pp. 1-11.
- Barbazza, E., Kringos, D., Kruse, I., Klazinga, N.S. and Tello, J.E. (2019), "Creating performance intelligence for primary health care strengthening in Europe", *BMC Health Services Research*, Vol. 19, p. 1006.
- Blakeman, T., Harris, M., Comino, E. and Al, E. (2001), "Evaluating general practitioners' views about the implementation of the Enhanced Primary Care Medicare items", *Medical Journal of Australia*, Vol. 175, pp. 95-98.
- Bouamrane, M.-M. and Mair, F.S. (2014), "A qualitative evaluation of general practitioners' views on protocol-driven eReferral in Scotland", *BMC Medical Informatics and Decision Making*, Vol. 14, p. 30.
- Brousseau, D.C., Nimmer, M.R., Yunk, N.L., Nattinger, A.B. and Greer, A. (2011), "Nonurgent emergency-department care: analysis of parent and primary physician perspectives", *Pediatrics*, Vol. 127, pp. e375-81.
- Burke, S., Barry, S. and Siersbaek, R. (2018), "Sláintecare – a ten-year plan to achieve universal healthcare in Ireland", *Health Policy*, Vol. 122 No. 12, pp. 1278-1282.
- Chaudry, R.V., Brandon, W.P., Thompson, C.R., Clayton, R.S. and Schoeps, N.B. (2003), "Caring for patients under Medicaid mandatory managed care: perspectives of primary care physicians", *Qualitative Health Research*, Vol. 13, pp. 37-56.
- Chen, M.A., Hollenberg, J.P., Michelen, W., Peterson, J.C. and Casalino, L.P. (2011), "Patient care outside of office visits: a primary care physician time study", *Journal of General Internal Medicine*, Vol. 26, pp. 58-63.
- Close, J., Fosh, B., Wheat, H., Horrell, J., Lee, W., Byng, R., Bainbridge, M., Blackwell, R., Wits, L., Hall, L. and Lloyd, H. (2019), "Longitudinal evaluation of a countywide alternative to the quality and outcomes framework in UK general practice aimed at improving person centred coordinated care", *BMJ Open*, Vol. 9, p. e029721.
- Darker, C., Whiston, L. and O'Shea, B. (2015), *Chronic Disease Management in Ireland Perspectives from Patients and Clinical Stakeholders – Implications and Recommendations for the Irish*

- Healthcare System*, Department of Public Health and Primary Care Trinity, College Dublin, Adelaide Health Foundation.
- Fowler Davis, S., Piercy, H., Pearson, S., Thomas, B. and Kelly, S. (2018), "Factors affecting decisions to extend access to primary care: results of a qualitative evaluation of general practitioners' views", *BMJ Open*, Vol. 8, p. e019084.
- Gillies, R.R., Shortell, S.M., Anderson, D.A., Mitchell, J.B. and Morgan, K.L. (1993), "Conceptualizing and measuring integration: findings from the health systems integration study", *Hospital and Health Services Administration*, Vol. 38, pp. 467-89.
- Goodwin, N. (2016), "Understanding integrated care", *International Journal of Integrated Care*, Vol. 16 No. 4, pp. 1-4.
- Gosden, T., Forland, F., Kristiansen, I.S., Sutton, M., Leese, B., Giuffrida, A., Sergison, M. and Pedersen, L. (2000), "Capitation, salary, fee-for-service and mixed systems of payment: effects on the behaviour of primary care physicians", *Cochrane Database of Systematic Reviews*, Vol. 3, CD002215, pp. 1-24.
- Grooten, L., Vrijhoef, H.J., Calciolari, S., Ortiz, L.G., Janečková, M., Minkman, M.M. and Devroey, D. (2019), "Assessing the maturity of the healthcare system for integrated care: testing measurement properties of the SCIROCCO tool", *BMC Medical Research Methodology*, Vol. 19 No. 1, pp. 1-0.
- Grumbach, K., Osmond, D., Vranizan, K., Jaffe, D. and Bindman, A.B. (1998), "Primary care physicians' experience of financial incentives in managed-care systems", *New England Journal of Medicine*, Vol. 339, pp. 1516-21.
- Health Service Executive (HSE) (2018), *Health Service Capacity Review 2018: Executive Report, Review of Health Demand and Capacity Requirements in Ireland to 2031- Findings and Recommendations*, Department of Health, Dublin.
- Isaac, D.R., Gijssbers, A.J., Wyman, K.T. and Al, E. (1997), "The GP-hospital interface: attitudes of general practitioners to tertiary teaching hospitals", *The Medical Journal Of Australia*, Vol. 166, pp. 9-12.
- Kennedy, J., Culliton, M. and Leahy, D. (2016), "Risk management and quality improvement strategies for patients and healthcare professionals in primary and secondary care", *Medisec*, pp. 1-36.
- Kodner, D.L. and Spreeuwenberg, C. (2002), "Integrated care: meaning, logic, applications, and implications – a discussion paper", *International Journal Of Integrated Care*, Vol. 2, p. e12.
- Lee, M.S., Ray, K.N., Mehrotra, A. and Al, E. (2018), "Primary care practitioners' perceptions of electronic consult systems a qualitative analysis", *JAMA Internal Medicine*, Vol. 178, pp. 782-789.
- Lyngso, A.M., Godtfredsen, N.S., Host, D. and Frolich, A. (2014), "Instruments to assess integrated care: a systematic review", *Int J Integr Care*, Vol. 14, p. e027.
- Mitchell, G.K., Burridge, L., Zhang, J., Donald, M., Scott, I.A., Dart, J. and Jackson, C.L. (2015), "Systematic review of integrated models of health care delivered at the primary–secondary interface: how effective is it and what determines effectiveness?", *Australian Journal of Primary Health*, Vol. 21 No. 4, pp. 391-408.
- Murphy, S., Lenihan, L., Orefuwa, F. and Al, E. (2017), "Electronic Discharge Summary and Prescription: improving communication between hospital and primary care", *Irish Journal Of Medical Science*, Vol. 186 No. 2, pp. 455-459.
- O'Dowd, T., Ivers, J.H. and Handy, D. (2017), "A future together building a better GP and primary care service", *Health Service Executive: Trinity College Dublin and Department of Public Health and Primary Care*, pp. 1-4.
- Pavlickova, A. (2019), "SCIRROCO Exchange – capacity building support for integrated care", *European Journal of Public Health*, Vol. 29 Supplement_4, pp. ckz185-703.
- Reynders, D. and Ryš, A. (2017), *Blocks - Tools and Methodologies to Assess Integrated Care in Europe*, European Commission.

- Southern, D.M., Appleby, N.J. and Young, D. (2001), "Integration from the Australian GP's perspective", *Australian Family Physician*, Vol. 30, pp. 182-8.
- Strandberg-Larsen, M. and Krasnik, A. (2009), "Measurement of integrated healthcare delivery: a systematic review of methods and future research directions", *International Journal of Integrated Care*, Vol. 9, p. e01.
- Tello, J., Barbazza, E., Yelgezekova, Z., Kruse, I., Klazinga, N. and Kringos, D. (2019), "WHO European primary health care, impact, performance and capacity tool (PHC-impact)", *WHO European Framework for Action on Integrated Health Services Delivery. World Health Organisation (WHO) Regional Office for Europe*, pp. 1-21.
- Tuzzio, L., Ludman, E.J., Chang, E., Palazzo, L., Abbott, T., Wagner, E.H. and Reid, R.J. (2017), "Design and implementation of a physician coaching pilot to promote value-based referrals to specialty care", *The Permanente Journal*, Vol. 21, pp. 16-066.
- Valentijn, P.P., Schepman, S.M., Opheij, W. and Bruijnzeels, M.A. (2013), "Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care", *International Journal of Integrated Care*, Vol. 13, pp. 1-12.

Further reading

- Delone, W. and McLean, E. (1992), "Information systems success: the quest for the dependant variable", *Information Systems Research*, Vol. 3 No. 1, pp. 60-95.
- World Health Organisation (WHO) Regional Office For Europe (2016), *Integrated Care Models: An Overview*, Health Services Delivery Programme, Division of Health Systems and Public health.

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