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Evaluating Learning Disability Case Management from a Service Delivery Network Perspective

Mark Spurrell, Luis Araujo and Nathan Proudlove

Abstract
The focus of much attention in improving healthcare is management of the complex case and long term conditions. The case management literature is characterised by a theme of coordinating resources across a network of sources, however a service delivery network (SDN) perspective has not previously been widely considered as potentially useful. Such work as has been reported has tended to simply consider the patient perspective only. A particular form of case management is used in UK Learning Disability services for complex cases, the Care Programme Approach (CPA). There are concerns about the functioning of CPA in such services and this study sets out to explore the participation practices of relevant agents in CPA case reviews from a service delivery network point of view. A series of 20 cases were selected within a particular service, and the case review documentation was explored using a template analysis methodology. A service delivery network emerged formed at the intersection between patient network, commissioner network and clinician network, and the quality of contributing network participation was captured using techniques from Qualitative Comparative Analysis. There was a conspicuous degree of variation to the quality of participation from each network across cases and to the alignment between the networks, which were likely to be relevant to service quality. The investigation proved useful in highlighting suggestions for service improvement, and for expanding the scope for using the SDN concept for more complex areas of service in healthcare. The deployment of the idea of the SDN to such a complex area of service suggested adaptations to the concept that would be useful to other service sectors. In future research it would be possible to extend this methodology to investigate the relationship between SDN quality and the achievement of valued outcomes by the service system.

Introduction
There is a growing argument that concepts from the business network literature can be applicable to public sector service such as healthcare (Osbourne, Radnor & Nasi, 2012), complemented by concepts such as value, where as a result of service the patient feels they are better off than before (Porter, 2010; Porter & Lee, 2013). Porter's original modeling of the value creation process as value chain to healthcare has been supplanted by more service logic based models, including value networks (HBR ref; Stabell & Fjelstadt, 1998) and value cocreation in a network context (Edvardsson, Tronvoll & Gruber, 2010). In an empirical example, McColl-Kennedy et al (2012) adopt a customer service network perspective to study cocreation styles in patients attending a cancer clinic. By adopting this perspective they were able to characterise 5 cocreation styles amongst patients that were linked to different quality of life outcomes. Building on this work, we argue that it is therefore topical and useful to further study the service delivery network perspective to value creation in health.

In terms of the broader agenda to improve healthcare, there are a number of other important contemporary themes. These include the importance of improving the management of long term chronic conditions and individuals with multiple complex needs, the importance of a patient centred approach, and the critical examination of unexplained variation in clinical practices and outcomes across services (Berwick, 2002). In the UK, a further concern might be added in regard to the disparity of focus and support that some authors describe for mental healthcare, as compared to other specialties (Bailey, 2013). In this context, there is a developing literature in healthcare to explore approaches to the integration of resources and the configuration of services to better effect, with a particular focus on long term care conditions and case management. In the UK, there is standardised case management approach in mental healthcare called the Care Programme Approach (CPA). Although perhaps somewhat disconnected from the mainstream literature, experience of implementing complex case management such as CPA in mental healthcare has a longer pedigree than other specialties, and may well be instructive to study (Goodwin & Lawton-Smith, 2010). An overarching perspective for understanding service configuration in complex case management across specialties would be of assistance in resolving inter-specialty disparities. We argue that a service delivery network perspective, anchored in the notion of
value creation, has the potential to provide an overarching conceptual framework to support this (cf Ostrom, 2011).

In this paper we provide an overview of the relevant concepts from the service network literature, followed by an overview of the case management literature. In particular we set out the experience from the literature on CPA in UK mental healthcare as highlighting some of the issues for case management implementation. The most recent literature on CPA pertains to its failure to support the service delivery network in the case of the mistreatment of patients at The Winterbourne View Learning Disability hospital: the antithesis to value creation (Flynn & Citarella, 2012). In this context we report on an exploratory investigation of the service delivery network functioning of a series of CPA case reviews in another Learning Disability hospital in the UK. In subsequent discussion we comment on the implications of our findings for practice, for service improvement and for service network and case management theory.

Case Management as collaboration in service networks

- Recognised as pivotal to contemporary challenges in healthcare management: micro, meso & macro level
- Working in partnership with the patient and other care agents to optimise outcomes (Nolte & McKee, 2008)
- A high quality interaction between a proactive clinical team, activated patients and community resources (Wagner, 1999; 2001)
- ‘Knitting together’ care from multiple sources (Goodwin & Lawton-Smith, 2014)

Problem with CM

- Fragmented, with as yet limited model development and evaluation (Nolte & McKee, 2008)
- Focus has been on long term chronic conditions rather than complex care (Nolte & McKee, 2008)
- How to aggregate experience of the individual case to shape service delivery systems (Baker, 2011)
- Heavy reliance on implicit concept of networks, but lack explicit theoretical framework
In order to address the needs of patients with long term conditions a model of care is required that takes a patient centred approach to working in partnership with the patient and other care agents to optimise outcomes (Nolte & McKee, 2008), supported by collaborative planning (Lorig, 1993). Case management sits within the family of integrationist approaches to long term care as a range of models that are particularly associated with cases of multiple complex needs (Krumholz et al, 2006). The field of case management and care integration is fragmented however. Nolte & McKee argue that it is difficult to define a generally accepted model that applies across all settings and contexts. In that context, one framework that is perhaps gaining more ground than others, they cite, is the Chronic Care Model (CCM) (Wagner et al, 1999, Wagner et al, 2001). The Chronic Care Model (CCM) envisages a high quality interaction between a proactive clinical team and activated patients. The model is conceptualised as having strong links between the service delivery system and community resources, with a focus on functional and clinical outcomes. Importantly, the model distinguishes between the micro level of application, consisting of the partnership between patients, families, healthcare teams and community partners, and the meso level (the healthcare organisation and broader community perspectives) and macro level (the policy and financing context). We argue therefore that the literature on case management is therefore redolent with network considerations.

In this context, Goodwin & Lawton-Smith (2010) propose that in essence such framework models tend to fall on a continuum between two configurations of either a ‘fully integrated system’ or a ‘care co-ordination model’. The authors argue that fully integrated systems, with more formal and hierarchical structures are best suited for predictable and well defined case management needs such as single disease chronic conditions. For areas characterised by complexity, multiple morbidity and uncertainty, as may be found in mental healthcare, the case co-ordination approach would better apply. The organisational form they advocate in such cases involves collaboration and co-operation across organisations ‘knitting together’ care from multiple sources. We would propose that this forms an important, distinct choice of vantage points from which to consider and evaluate the service user experience in healthcare. Following up the care co-ordination
theme, Goodwin & Lawton-Smith propose that the Care Programme Approach (CPA) case management system used in UK mental healthcare provides a helpful focus of study for understanding complex long term case management. Pre-dating the recent interest in modes of integrated care, they argue that it holds lessons on implementation issues for other sectors and healthcare economies.

**Service Networks**

According to Borgatti & Halgin (2011) the concept of a network both in the business and public sector literature is well established. A network is a set of actors or nodes that are interconnected. The nature of a node is that it consists of an actor, or a group of actors with collective agency. The nature of the interconnections are that they are reciprocal relationships and interactions, which can take many forms. Borgatti & Halgin make a distinction between network theory and theory of networks, the former being concerned with how different properties of networks affect the world, which is the focus in this paper. In particular Borgatti & Halgin discuss how different structural properties produced by the quality of ties and the shaping of the participants can have different effects. In the service and marketing literature however there is a tension though between those that embrace networks and wish to propose a grand theory of embedded services in social systems (Vargo & Akaka, 2012; Akaka, Vargo & Lusch, 2013) and those who argue that these concepts have not been sufficiently developed and that the simple dyadic perspective remains sufficient for practical management purposes (Winklhofer, Palmer & Brodie, 2007).

**Service networks vs focal networks**

Möller (2013) usefully frames the debate by discriminating between the study of markets as networks, which are unbounded, and the study of focal nets and strategic nets, which are bounded and grounded by more practical considerations. The markets as networks literature he argues seeks to explain at a macro level how networks emerge and what their key drivers are. Focal networks and strategic networks are rather more concerned with service analysis and consist of just those actors and interactions that are practically perceived as relevant (Arjoutsijarvi, Möller and
Rosenbroijer, 1999). Strategic networks (or value networks) refer to focal networks that are intentionally planned rather than simply emergent in the service sphere (Möller, Rajala & Svahn, 2005; Raab & Kenis, 2009). In both cases the value of exploring the network perspective is to develop a rich picture of the configuration of participants that exist in a particular setting and why. The lack of a theory testing dimension could be said to be a weakness, however Moller argues that in the case of strategic networks configurations are directly related to the service value generating system. In this context this would have an impact on organisational effectiveness and Moller cites case based analytic techniques developed by Ragin (Ragin, 2008: Ragin & Amoroso, 2010) as offering a means of conducting theory testing investigations.

Service delivery networks as a particular form of focal service network

- How does the SDN apply to the collaborative space between customer and supplier in complex cases?
- How does the SDN accommodate the interactions and interconnections between multi-party exchanges (cf Vedel et al, 2012)
- How might SDN connect with the value generating system?
- How do we capture quality of network functioning with a view to evaluating effectiveness (cf Moller 2013)

A particular kind of focal network, the service delivery network (SDN) has recently been a subject of inquiry by Tax et al. (2013). Tax et al agree that understanding service experience for customers is better viewed in network terms. For their argument, a customer journey consists of dyadic encounters with a series of providers or organisations, which together form the service delivery network. The authors specifically cite the experience of healthcare as a complex service encounter where the concept of a SDN might well apply. It is key to their proposition that the SDN is an ego network focused on the customer or service user, and that the SDN includes a co-ordination function for these multiple interactions. The co-ordination function is seen as either being customer led, led by one of the providers, or a joint function. As it
stands it is not clear whether their concept of a SDN simply captures an emergent focal network, or whether it can be considered as providing the basis for a strategic or value network, capable of playing a role in predicting and testing the relationship between network configuration, the value generating system and organisational effectiveness.

The stance adopted by Tax et al (2013) is specifically focused on the customer as participating in an ego centric network, and a SDN is defined as two or more organisations that are perceived as responsible for the provision of a connected, overall service. However it is not clear that that is sufficient (Ford & Hakansson, 2006). From the value generating system point of view, Gronroos & Gummerus (2014) define three potential spaces or bubbles for interaction: the customer space, the provider space and a shared space where interaction takes place. In other words it is important to define the chosen vantage point for applying a network perspective. Moller is concerned with the provider vantage point of view when suggesting that strategic networks are intentionally planned. Tax et al propose a customer vantage point, but they also highlight the possibility of a collaborative space for parties for co-ordination of the elements of service, consistent with Gronroos & Gummerus’ shared bubble. Gronroos & Gummerus, like Tax et al accept that value creation takes place in a network context, whilst retaining the notion of a series of dyadic exchanges as the manner of interaction. In fact in other literature there is simply just a shared space where stakeholders collaborate (Ballantyne et al, 2011), and it’s all uniquely determined actor to actor interaction, often with multi-party interactions and interconnections (Vedel, Geersbro, and Ritter, 2012). In healthcare for example Zolkiewski and Turnbull (2002) define a focal network as the collaboration between a customer network, a supplier network and an indirect network (including other relevant organisations). It seems a reasonable extension of Tax et al’s concept of a service delivery network that it can be applied from customer perspective, provider perspective or a collaborative perspective. As indicated by Borgatti & Halgin (2011), it is for the investigator to define the network under consideration. Consistent with Zolkiewski & Turnbull, we propose that a service delivery network concept can be applied to the collaborative firm focus in a service system.

A further difficulty with Tax et al’s version of SDNs is that it treats all other parties in the service experience (alters) on equal terms.
as a series of relationships with individuals. Again healthcare provides a good example of why this might be questioned. In McColl-Kennedy’s et al (2012) study of co-creation style in healthcare, the authors elucidate that part of the patient style consists of their relationships within their personal networks (friends and family etc). There is a further distinct set of relationships with the clinicians concerned. That’s as far as McColl-Kennedy et al go, but in other literature on health and public sector services there is a consistent theme of the care experience taking place at the intersection of a number of networks, typically service user, provider and care purchaser (Provan & Millward, 1999; Ritter, 2000; Zolkiewski & Turnbull, 2002). Meanwhile, the influence of these participant networks on the interactions of others are a further dimension to be borne in mind (Vedel, Geersboro & Ritter, 2012).

Therefore we propose that a service delivery network concept can be used to capture a strategic network, where the focus of the SDN is the collaborative space between the service user and participating organisations, and the SDN now becomes defined as two or more organisational networks, together with the service users network, that are responsible for the provision of an overall connected service. This brings the concept into line with the direction of travel of contemporary literature, and more firmly links SDNs to the service value generating system. This sets the stage for theory testing with regards to the influence of the shape and quality of the SDN on organisational effectiveness as envisaged by Moller. This is an area that has not so far been empirically explored in healthcare.

The Care Programme Approach

- Good testing ground for service concepts (such as SDN), extending the McColl-Kennedy initiative.
- Mental Health related services have natural leadership in case management, but largely overlooked by other areas of healthcare.
- There is a published problem with CPA functioning
- SDN failure at Winterbourne View (Flynn & Citarella, 2012)
The CPA case management system was introduced in 1991 and provides for a named care co-ordinator and a person-centred process for assessing patients with complex conditions, integrating necessary resources and working collaboratively with patients, carers and stakeholders to best effect (Department of Health 1990; 2008). Patient progress is assessed through a series of CPA review and planning meetings. The role of collaborative CPA planning sits at the heart of the care co-ordination process. All mental health service providers are required to deploy CPA in managing complex conditions, and it has general acceptance in clinical use (Kingdon and Amanulla 2005). In principle, CPA case reviews offer a convenient window for the study of patient-level mental health service as it is practiced in the UK.

There has been criticism of CPA as it has been practiced. The chief difficulty is reported to be that it has not been consistently implemented as intended, with examples of a loss of relationship and engagement with the service users, not addressing areas that matter to service users and not sufficiently engaging family members (Goodwin & Lawton-Smith, 2010). The limited empirical work that there has been confirms its configuration within services needs improving. Carpenter et al (2004) studied 262 cases subject to CPA in the community. CPA was generally viewed as valuable by patients, but with wide variation in that experience between districts related to different service configurations. From a study of 221 cases Rose (2003) found that CPA generally didn’t engage service users, although when it did it was welcomed as making a difference. Rose argued that despite intentions to be service-user focused, CPA had defaulted to something influencing organisations, who applied systems to (rather than with) service users. In other words CPA has potential for value generation as a complex case management system, but in its implementation for some reason the service benefit has been variable. In an analysis done by Simpson, Miller, and Bowers (2003a; 2003b) CPA implementation difficulties can be linked to a lack of unifying philosophy and a disconnect from the wider case management literature.

Perhaps most seriously, in x 2007 an example of profound service failure came to light with the discovery of poor care and mistreatment of patients with a learning disability at Winterbourne...
View hospital. In the subsequent review (ref), the failure of the CPA case reviews to raise awareness with the relevant network of stakeholders such as family, commissioners and clinicians was identified as an issue. In other words, one view of the scandal is that it represents a failure of engagement of the service delivery network in CPA case management. This aspect of service quality has not so far been further explored in UK CPA case management.

In summary, case management literature is strong on themes of integration of resources, partnership working with patients and others across networks and the optimisation of patient outcomes (Nolte & McKee, 2008). As has been noted, it is one thing to advocate patient centred care approaches, another to put it into practice (Edwards, 2011). As illustrated by the experience of CPA in UK mental health, there is a need for theory development in this area.

**Research Question**
The themes we have identified in the literature are the potential for usefully applying the SDN concept to the configuration of participants in healthcare from a collaborative vantage point. The functioning of the SDN appears to be an important aspect of the emerging complex case management literature in healthcare, but there is scope to further articulate that relationship and its implications for the value generating process at the individual case level. In this context, there has been a recent high profile service network failure in UK Learning Disability care, and there are wider concerns for the configuration of CPA case management in UK mental healthcare more generally. Therefore it is useful to undertake an exploration of the configuration of the SDN for a series of CPA case management reviews in a specific Learning Disability service specialising in complex care needs.

The proposed research questions are, for a series of CPA case management reviews:

i. What is the apparent SDN configuration for a series of CPA case management reviews within a specialist Learning Disability Service?

ii. What implications for service improvement, service management and case management development arise from this application of the SDN concept to CPA case management reviews?
iii. What implications for mainstream service management flow from an application of SDN to this complex service area?

In order to assist with exploring the patterns of interactions across participant networks, techniques from Qualitative Comparative Analysis (QCA) were used to support the cross case comparisons (Ragin, 2008; Ragin & Byrne, 2009).

**Methodology**

For this investigation, we had access to the clinical in patient services offered by a UK learning disability trust. The Trust provides in-patient mental healthcare to patients with complex needs associated with learning disability and autism, and services are structured into four service areas: care in a medium-secure setting, care in a low-secure setting, a women’s service and an enhanced-care (or rehabilitation) service. Patients within the services are all subject to CPA review and the Trust operates a protocol describing the process, underpinned by patient-centred values. Within that protocol, CPA case reviews take place at least every six months, all relevant stakeholders are invited to attend.

In this study we have adopted a multiple embedded case study methodology using template analysis (King, 2012) to explore the network context to a systemic cross sectional sample of 20 cases of CPA case reviews in the Trust. Within case study literature it is legitimate for the focus of investigation to be a defined entity or phenomenon within an organisation (Woodside & Baxter 2011; Yin 2014). As outlined above, CPA case reviews are service entities, able to make and keep promises (Freund & Spohrer 2013), and therefore a legitimate focus of a case study methodology. The investigation sits within the theory-building phase of research (Christensen 2006). Approval was obtained from the Trust’s Research Committee to undertake the study. No direct patient contact was required for the study and the investigation was structured as a service evaluation project and not a clinical study. All records remained confidential and no information was extracted from which an individual patient would be identifiable.

**Sample and data**
The sample was selected comprising the first five cases scheduled from each of the four service areas following research approval to reflect a broad view of CPA across the organisation. As a service-process study, apart from gender and service area, demographic data on patients were not included. For each CPA review, reports are tabled and the attendance and minutes of the meeting are recorded. The data obtained for study consisted of all documentation filed in the electronic case record for the most recent CPA care review for the selected cases. This documentation consisted of the minuted record of the CPA review plus additional reports tabled by professionals and patients. This was a study of documentation as distinct from oral information or direct observation. Atkinson & Coffey (2010, p80) argue that ‘documentary materials should be considered as evidence in their own right’ and the construction and conventions associated with documents, in this instance being the official record of the CPA review, are also part of the document’s reality, a version of reality that can be usefully studied. We therefore have regarded the study of the official CPA meeting record, within an interpretive paradigm supported by the inter-textual consistency between cases, as a valid perspective for investigating the functioning of CPA reviews.

The Template
The data obtained from the official CPA documentation was explored using a template analysis (King 2012). As allowed by the methodology, we have used knowledge from the literature to develop a suitable template for investigating ‘network participation’. The network construct derives from the recurrent theme in the literature that view the principle participant networks in health and public sector services as being a patient or service user network, a clinician network and a commissioner network as the dominant sources of agency (Zolkiewski & Turnbull, 2002; Provan & Milward, 1999), which we confirmed in our pilot work (Spurrell & Proudlove, 2014). The participation part of the construct was formed by drawing on the emphasis placed on practice theory in the literature (Vargo & Lusch etc.) and the insights on interaction and interconnection proposed by Vedel, Geersbro & Ritter (2012). From pilot work we have proposed that participation practices associated with the contributory networks can be reflected in their representation at CPA case reviews, by the format of the
documentation and discussions structured into the reviews and by evidence within the discourse recorded of active participation. The mature resultant template based on the pilot work is shown in Table 1.

Table 1. Mature Template for exploring network participation in CPA case reviews.

<table>
<thead>
<tr>
<th>Template Theme</th>
<th>Nature of Evidence and emergent subthemes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network Context</strong></td>
<td><strong>Representation</strong></td>
</tr>
<tr>
<td>• Patient Network Perspective</td>
<td>o Personal attendance at CPA review by network members</td>
</tr>
<tr>
<td>• Clinical Team Perspective</td>
<td><strong>Structuring</strong></td>
</tr>
<tr>
<td>• Indirect Stakeholder Perspective</td>
<td>o Structured documentary space on meeting agenda or demonstrated in minutes.</td>
</tr>
<tr>
<td></td>
<td><strong>Participation</strong></td>
</tr>
<tr>
<td></td>
<td>o Views reactively elicited in discussions and documentation.</td>
</tr>
<tr>
<td></td>
<td>o Pro-active expression of views in minutes and production and co-production of reports to inform the review process.</td>
</tr>
</tbody>
</table>

The *patient network* would encompass the individual service user and their family and friends. In addition, it would also include those who might provide support in an advocacy role (e.g. mental health advocates, solicitors) and professionals from the service users home area community team (e.g. local care co-ordinator, community nurse, social worker). It might have been argued that these professional should be located in a different network, but from the patient eco-system perspective these are all agents whose primary purpose is to support the service users in their own communities.
The clinician network was considered to be the ‘clinical firm’ (cf. Porter & Lee, 2013) or rather the multi-disciplinary team designated by the Trust to provide the service. The team might include a broad range of clinical disciplines, including a named responsible clinician, medical staff, nursing staff, occupational therapists, psychologists and other forms of specialist therapists.

Meanwhile, the commissioner network covered the service commissioners or their agents.

Within each theme, three further subthemes were developed consisting of representation, structuring and participation. Representation captured the attendance of representatives from participant networks at the CPA case review. This was important since each active participant acted as a boundary spanning object: representing the wider network perspective in the CPA review service focus, and reflecting CPA review experience in due course to their wider network at the meso and macro levels (cf. Akaka, Vargo & Lusch, 2013). Structuring reflected the extent to which structured space was built into the CPA discussion to encourage contribution from participant networks and active participation reflected the extent to which there was active engagement evident from each network. These are important as they encompass the participation practices for each stakeholder network through which the interactions and interconnections of multi-level service exchange are structurally transacted, as envisaged by Vedel, Geersbro & Ritter (2012).

Analysis
The data for each case was reviewed for accuracy and completeness. The template themes and subthemes were encoded into NVivo version 10 (2014). Each set of case documentation was imported into the NVivo project and the data was examined and coded to the template nodes. As an exploratory investigation, data analysis was undertaken using pattern matching of the coded data, consistent with the cross-case synthesis approach to case study analysis described by Yin (2014). A rich picture was developed from the documentary data of the consistency and extent to which the template captured the network context to CPA case reviews and the range and richness of participation for each network was considered and described.
In order to examine the patterns of network participation practices in a more structured fashion, we drew on the principles of fuzzy set Qualitative Comparative Analysis as described by Ragin (2000; 2008). This analytic technique makes use of set theory to represent qualitative data in a format whereby case level data can be aggregated and interactions and patterns can be evaluated. This is a quantitative technique that is able to operate with small case samples and avoids some of the difficulties of normative statistical techniques in qualitative research (Ragin, 2008; Ragin & Byrne, 2009). The technique relies on assessing the degree of membership of cases to the defined set of interest in a considered process, termed ‘casing’. In this study the primary set of interest is the set of rich participation practices, where participation practices have been operationalised as Representation, Structuring and Active Participation, as above. We followed a methodology on casing for investigating social phenomena at the micro level (Basurto & Spear, 2012), with definite set membership defined as 1, definite non set membership was defined as 0 and the transition point of equipoise between in and out was 0.5. We mapped the degree of rich participation practice set membership for each network for each case (see appendix for a more detailed description) and charted the overlaps in practice variation for further examination.

Summary
In summary, we have sought to elucidate the network context to value co-creation in CPA case reviews by adopted a pragmatic methodology for exploring participant practices of the key stakeholder networks involved at the case level. The consistency of findings alongside current literature and the implications for the applicability of the CPA triad are discussed. Suggestions for service improvement are developed, along with commentary on potential implications for service design and CTR functioning. Implications for further research are considered.
Results
Our findings demonstrated that there was considerable variation to the participation practices associated with each of the patient, clinician and commissioner networks, which ranged from some very rich profiles to more limited ones. After describing the key findings for each participant network, we have used QCA methodology to illustrate these variations, and the degree of concordance of participation between patient, clinician and commissioner networks. A set membership table for rich participation practices for each network is in the appendix (Table A1)

The Patient Network
The findings for the patient network ranged very broadly. In one case the only participation for the patient was their partial attendance at the review, with no support from other possible network members such as family, home team or advocates. At the other pole, patients fully participated in reviews, in one case chairing the meeting. In other cases patients co-produced progress reports for the review and were supported by attendance of family, advocates, solicitor and social worker or nurse from home area. Generally though, structured space for pro-active contribution of the patient perspective was limited. Within the framework of QCA, variation as determined by degree of set membership to the set of rich participation is illustrated in Figure 2. This confirms that for most cases there is scope to improve patient participation to be at the level of best possible practice. A cut off of .7 has been indicated to capture the point at which a reasonable spread of good participation practices had been identified within the data. Only 6 out of the 20 cases achieved that threshold, whilst for at least 5 cases the degree of participation could be described as limited (taking .4 as the cut off).
Figure 2. Chart of fuzzy set membership of rich participation for Patient Networks

The Commissioner Network
Similarly there was considerable variation in Commissioner participation. A broad view was taken to allow that other parties such as social workers or community nurses might have roles in representing commissioners. Even allowing for that, however commissioner attendance was limited for this cohort. The lack of commissioner involvement was even raised as a matter of concern by the meeting in one case. There was evidence nevertheless that there was more commissioner interest than might have been apparent from apologies submitted for example, suggesting that the cross sectional survey may not have fully captured their interest. However, within the structuring of discussion space within CPA reviews there was not a clear sense of ‘what might matter to commissioners’ as such, but for about half of cases there was a focus on care pathway progression, which some might assume coincides with what matters to commissioners. Again, the variation if commissioner participation is reflected in Figure 3, within a QCA framework. In this case only 4 cases reached the reasonable good practice threshold and 6 where there was limited or even no participation. Therefore, there is evidence for scope to improve both the involvement of commissioners in CPA and to give further attention to what matters to commissioners within the format.
The Clinician Network
For the participation of clinicians, the key finding was the variation in richness of the multi-disciplinary team (MDT) representation and the level of collaborative practice that was seen. Thus, for some cases ‘the MDT’ consisted of just the Responsible Clinician (RC) and a nurse. This contrasted with other cases which benefitted from the RC, a specialty doctor, the case manager and the unit manager as well as occupational therapy (OT) and psychology or psychological therapist representation. Generally, there was OT input for the most part. The advantage of case manager and unit managers being present from the nursing team was a broader coverage of the personal knowledge of the case with a wider awareness of the service wide policies and procedures to best support care. The psychological service input was the most variable feature, being only available in about half of cases. Figure 4 represents the variation across cases taking into account attendance and degree of proactive contribution. The findings challenge the clinical perspective to consistently deliver an MDT perspective that is richer than just an RC and a nurse. Only 6 cases reached threshold for reasonably good participation, similar to above, with 5 cases appearing as more limited. This is perhaps additionally important to appreciate since clinicians as the instigators of reviews are likely to be better placed to generate participation.

Figure 3. Chart of fuzzy set membership of rich participation for Commissioner Networks
Having illustrated the variation in network participation across the sample using QCA, the interconnection between the networks at the case level can be seen by charting the set intersection for the three networks.

Figure 4. Chart of fuzzy set membership of rich participation for Clinician Networks

Network Interconnection

Figure 5. Chart of fuzzy set membership of rich network participation for each of patient, commissioner and clinician networks for a sample of CPA case reviews.
This chart integrates the variation in participation practices described above for each network to illustrate that different networks are behaving differently at different times. In other words there are not consistently cases where everyone is engaged and participating together, leaving other cases where engagement and participation is poor and simple suggestions of sharing best practice could be applied. Rather the picture appears to illustrate a more complex inconsistency between participating networks. In order to examine this apparent disconnection, the degree of set overlap was calculated using fs/QCA software designed for the purpose (Ragin, Charles & Davey, 2014, Version 2.5). The coincidence of rich patient and commissioner participation was .58 (where 1 is complete coincidence), Patient and Clinician participation was .76 and clinician commissioner was .64. The degree of overlap of rich participation for all three was only .52. This is consistent with a greater disconnect for commissioner network engagement and that overall there does not appear to be a strong alignment between networks in the participation process.

Discussion

- How did the SDN present
- Indications of scope for service improvement
- Implication for CPA, Case Management and SDN theory

In this investigation we have elicited the service delivery network (SDN) associated with CPA case management reviews in a learning disability service. The SDN encapsulated the intersection of 3 participating networks relating to patients, commissioners and clinicians, as evident in the review documentation. In this context, a notable variation to the quality of participation was identified for each network across the series of cases.

The route to service improvement

Participating Network Variation
- Replicates previous literature findings of variation in CPA configurations, but right at the case level
• Tension between standardisation, customisation and individualised care (Swinglehurst et al, 2014; Elg et al, 2012)
• Some cases of conspicuously rich practice
• Tension between commissioner’s system level perspective and the case level (Akaka et al 2012)

Explanations
• A cross sectional sample picked up variation in stages of cases
• Variation in patient participation style (cf. McColl-Kennedy et al, 2012; Sweeney et al 2015)
• Variation in professional participation styles, extending McColl-Kennedy et al (2012).
• Functioning of service platform or protocol

Contribution to case management
• Provides an organising construct to be able to structure and map network aspects of case management.
• Step towards a more general conceptual/theory framework to underpin case management
• Orientate to the micro, meso and macro levels within case management service system

Contribution to CPA
• Practice variation is at the case level, not just a service level or regional health system problem
• Tool for exploring CPA function in other settings
• Specific suggestions and opportunities for improving participation in CPA case reviews

????The elicitation of these three distinct networks, with the service focus as at the intersection of these networks, is consistent with literature in health and the public sector (Provan & Millward, 1999; Ritter, 2000; Zolkiewski & Turnbull, 2002). This contrasts with other literature such as McColl-Kennedy et al (2012), which has instead focused on interpreting the service from just the patient network perspective. However, in eliciting the network picture we describe, it needs to be acknowledged that choices are made in attributing various agents to the respective participant networks. For example we associated the patient’s social worker with the patient network, but they might also at times have a role as part of the commissioner network. Also, we have chosen not to include stakeholders with a more indirect interest, such as
regulators, although others do include such parties (Zolkiewski & Turnbull, 2012).

**Participating Network Variation**

In terms of the qualities of the SDNs identified within this case series, the principle finding was of a marked variation between cases with evidence of rather rich quality of participation in the SDN from some networks in some cases, contrasting with rather limited participation from some networks in others. Further, in only a few cases was there a lining up of rich participation from all three participating networks in the SDN. In effect, each SDN had a rather unique participatory profile. This variation to CPA SDNs reinforces previous findings of service level variation in CPA configuration reported above (refs). More significantly, these findings extend that picture to suggest that participatory variation extends right down to the case level within services.

Variation in practice and sharing where there’s best practice is a key principle within healthcare improvement literature (Berwick, 2002). However, it is not immediately obvious that variation should be always something to seek to eliminate. Swinglehurst, (ref), argues that in some cases variation should be a driver of customisation to the individual case. We would argue that the degree of uniqueness of each SDN that we elicited would be consistent with needing to understand the sources of variation further. There are a number of possible explanations to consider, arising from these findings.

*Different stages and rhythms of care*

This study was a cross-sectional snapshot of cases that were at different stages along the care pathway. Therefore, between case variation may simply reflect the evolution of engagement, or natural fluctuations in participation over time. Such fluctuations might for example reflect changes in patient confidence from time to time, or perhaps even fluctuating availability of professionals as they look to meet competing demands to attend other meetings. It would be interesting to consider whether a more consistent picture emerged over a longitudinal perspective. From our data however, we would argue that such explanations are not sufficient to account for the level of variation identified. As well as the variation
being so marked, much of it was in areas that would not be time dependent, such as the way reviews were structured and the evidence of creativity in some cases for example. Further, variation was seen just as markedly in professional practices as for patients and carers: professional might be expected to be more consistently pro-active across the whole care pathway.

**Participation Style**
Expressed in terms of ‘co-creation style, it has already been highlighted by McColl-Kennedy and colleagues that variations in patient participation style might be an expected feature in healthcare (McColl- Kennedy et al, 2012; Sweeney, Danaher & McColl-Kennedy, 2015). Our findings suggest that similarly a consideration of the different co-creation styles for participating clinicians, commissioners and other stakeholders might also be relevant. Whilst McColl-Kennedy and colleagues focus simply on the patient style with regards to a series of individual actors, it can be expected that a further source of variation would be created by the interactions of different patient styles with different clinician or commissioner styles, and from the influences on those relationships from the other parties (Vede, Geersbro and Ritter, 2012).

There would therefore be an opportunity for service improvement in developing optimal models of professional engagement. There has been consideration of such issues in the patient empowerment literature previously, but the network perspective adds a further dimension to thinking about how such ideas can be implemented.

**Lack of organising framework**
Building on the theme of developing optimal models, it may be that a broader lack of consistency in how CPA reviews were approached could be a source of variation. Different reviews might have viewed their purpose and objectives differently, for example. There is a difference between using a CPA review to report on progress, and using CPA as a creative space for designing new care approaches. There is a lack of theory based framework development to guide Case Management (Nolte & McKee, 2008), including CPA (Simpson, Miller & Bowers, 2003a; 2003b). Within the SDN concept, Tax et al (2013) assume that there should be some kind of a service framework to support participant
collaboration. This is mirrored in other commentary on the importance of an emergent platform to engage participants to support value co-creation (Gronroos & Voima, 2012). There is widespread recognition in the service literature of the merit of structuring or blue printing touchpoints for guiding value creation in service (Alter, 2008; Kimbell, 2011; Bitner, Ostrom & Morgan, 2008), which may well have some applicability here. Therefore, a review of the operating framework that underpin CPA from a service theory perspective would lead to a better, more consistent framing of the value generating process within the SDN we would argue.

**What have we learnt about CPA**

As a standard feature of UK mental healthcare, it is legitimate to consider wider inferences from this case study series on a systemic basis (Yin). The key implication from this study is to confirm the previously reported variation in CPA patient engagement between services (refs). Further, however, it extends that finding to include variation in engagement of other participants (clinicians and commissioners), and for that variation to potentially extend down to the case level in practice. It would therefore be important to look at CPA at the case level in other settings to confirm these findings. As indicated above, our analysis from the SDN perspective draws attention to the role of service platforms in supporting the service process to best effect, which could be a useful focus for service improvement initiatives.

In this context, from our findings, a key area to clarify would be the purpose of CPA case reviews. As indicated above there appeared to be a distinction between simply a reporting function for the consideration of participants, and a more dynamic purpose as a creative space for developing the care plan with the patient. This parallels previous observations in CPA case management literature where care is provided to patients, rather than with (Rose). It is illustrative of the distinction made by Goodwin & Lawton Smith (ref) between ‘care co-ordination’ and care oversight or care brokerage, with ‘care co-ordination’ judged most appropriate for complex cases. Following the Winterbourne review analysis (ref), amendments are in hand as to how case management in Learning Disability care in the UK is to be better supported (ref). In this context, we would argue that a SDN perspective can make an important contribution to CPA policy development, and to understanding how to better structure case
reviews to best effect by providing some theoretical underpinning that has previously been lacking (ref).

**What Have We Learnt About Case Management?**
As indicated above, a key point made by Goodwin & Lawton-Smith has been the opportunity for extending learning from the experience of CPA to Case Management more generally. A key feature of approaches to case management are the integration of resources from a wide range of contributors. This worked example of the application of the SDN concept to complex case reviews illustrates how a more developed view of these diverse collaborators can be mapped out. This would assist in being able to engage and optimise a diverse range of potential contributions.

Further, by developing a perspective on the SDN from the vantage point of the intersection of multiple key stakeholders, progress can be made in accommodating more complex case scenarios into the developing models of care, complex case being for example where simple patient choice breaks down (ref). In other words, the emergent SDN frames the space for collaborative discussions on the best way forward for care, involving patients and carers and others as much as possible, which can be seen as having agency and purpose in service systems terms (Freund & Spohrer, ref). We would argue that this vantage point therefore promotes the enacting of the relevant service delivery model to best effect.

**What have we learned about the application of service delivery networks?**

In this investigation we have explored a particularly complex area of service exchange, and in doing so have made some adaptations to the configuration proposed by Tax et al. First, consistent with other literature we have shifted the vantage point of the SDN to the intersection between participating networks (refs). It is important to note that this perspective is one of many SDNs that could have been elicited for exploration that might equally be of relevance and interest to consider. It is the researcher that defines the network of interest, as indicated above (Borgatti & Halgin, 2011). Our investigation demonstrates a pragmatic, appreciative stance, as permitted in case study investigation (Cox & Hassard, 2005), whereby the vantage point we have adopted proves useful in bringing out insights into the service configuration and opportunities for improvement. Ultimately, further study from other
vantage points would enhance understanding, along with efforts to demonstrate empirical impact of SDN functioning on valued outcomes.

In figure 1 we have illustrated the shift in vantage point that we are proposing, with implications for one way of exploring the connection between the SDN and the value generating system.

![Diagram of SDN concept]

In the original Tax et al SDN concept, consistent with SDL (Vargo & Lusch, ref) the service user connects to the value generating process through their integration of resources from network contributors in isolation. In our proposal, consistent with Gronroos & Gummerus (2014) it is in the collaborative space that the participants engage, with emergent exchange of resources for benefit as the value generating process (cf. Ballantyne et al, ref: Zolkiewski & Turnbull).

This perspective is important, not just as a means of capturing complex service exchange, but as a means of accommodating the perhaps quite different qualities and degrees of alignment of parties to multi-party exchange. First, different stakeholders participate with different degrees of sophistication (Vedel & Geersbro, ref), or are constrained by different institutional drivers (Akaka, Vargo & Lusc, ref). Second, by capturing the participating network qualities it becomes practical to develop a qualitative picture of the case level SDN to assist managers in aggregating
micro level service experience, and to assist researchers in studying the impact of critical aspects of SDNs on valued service outcomes.

As suggested by Moller, in this study we have using set-theoretic techniques from QCA from which we have provided a qualitative signature to individual SDNs, consisting of in principle interactions of participants, structuring of the collaboration for participants and alignment of the participant network perspectives. This is consistent with and further extends Vedel & Geesbro (ref) view of the quality of interactions and inter-connections in collaborative multi-party exchange. At this stage, this is a limited application of QCA techniques. There has been criticism of QCA, however it has been increasingly used in studying complex public sector issues (ref), and in principle it allows for more formally studying the possible relationships between quality of SDN and valued service outcomes.

A set-theoretic approach offers other advantages too. A key aspect of network theory is not just the interactions between agents within networks, but also the shape of networks (Borgatti ref). In Figure 2 a representation of an SDN from the collaborative vantage point is shown. For three participant networks, as in this study, the size of the set might denote the quality of the network contribution, and the degree of overlap can denote the alignment of the respective networks with respect to SDN purpose. In this study the degree of overlap was calculated for the series of cases as a whole, to support the inference of variance in network alignment in the CPA setting. A more specific measure of network alignment would be needed to develop this tool, perhaps focused on the distinct service purpose within each contributing network. In our example, the purpose of the patient might be to resume meaningful relationships, the clinician for the patient to reduce symptoms and the commissioner to move on from hospital as soon as possible. This model could serve as a useful design tool for further service optimisation.
In this study we were seeking to explore specifically the contribution of CPA reviews to the value generating process, as illustrated by their documentary reality. Whilst CPA itself is important as a service entity, able to make and keep promises (Freund & Spohrer, 2013), further exploration is required from other standpoints to investigate the phenomenon of CPA beyond this documentary reality and to better understand the role of CPA in relation to other service entities in the wider service network.

In terms of the qualities of the SDNs identified within this case series, the principle finding was of a marked variation between cases with evidence of rather rich quality of participation from some networks in some cases, contrasting with rather limited participation from some networks in others. Further, in only a few cases was there a lining up of rich participation from all three participating networks. In effect, each SDN had a rather unique participatory profile. This variation to CPA SDNs reinforces previous findings of service level variation in CPA configuration reported above (refs). These findings extend that picture to suggest that this variation in CPA experience extends right down to the case level within services. These findings have a number of potential implications for service understanding and improvement, and also give rise to implications for case management and service theory.

In this investigation we have attempted to adapt the SDN concept to a more complex service setting than has previously been considered. In this exploration a number of themes were identified that need further consideration when stepping up to investigate more complex service scenarios, both within models of service management and models for case management. An exploratory study forms an important stage in theory building (Christensen, 2006). In framing these themes we would look to make progress towards theory testing.

Aggregation
In this exploration, whether as a result of variation in coordination or variation in factors driving participation, the result for this sample was that these cases presented quite distinct SDN profiles. A perspective on the ability to aggregate case experience is an important aspect to the SDN concept for Tax et al. (2013). Baker (2011) argues that developing and aggregating the individual case perspective is an important area for further development in healthcare improvement research. Meanwhile, Swinglehurst et al (2014) also argue that the customised approach to case level experience needs to be more influential in healthcare development. A similar perspective for healthcare has been proposed from a service marketing perspective (Elg et al. 2012). SDNs are a key component of the value generating system (Tax et al, 2013). Bringing the individual case experience into focus through the lens of the SDN paves the way to further exploring the impact of different styles of case coordination on valued outcomes.

In view of its complexity, the application of service theory to healthcare exchanges is challenging (Baron & Harris, 2008). In this exploration it has emerged that a number of key distinctions and adaptations were needed for the application of SDN.

Variation in network alignment
The fact that in only a minority of cases in this study appeared to be matched in terms of quality of participation calls for further consideration. On the one hand, in multi-party service exchange, Vedel, Geersbro and Ritter (2012) do highlight that participating networks might present at different levels of sophistication depending on maturity or purpose of the service exchange. On the other hand they do not specifically consider the impact of service alignment in terms of sophistication of interaction. It seems sensible to suppose that the functioning of the value generating system in CPA case management is likely to be more fruitful when the rich participation from all participating networks are optimised together. It would be interesting to further develop a framework to assess sophistication of participation, and to explore the impact of alignment further in service network inter-connections. In terms of areas to consider, again it might be that in terms of the maturity of service relationships, this might evolve over time. In addition, however, each of the participating networks in this study are likely to be influenced by quite different priorities and purposes.

Priorities and purpose
Variation in priority and purpose for participating networks is a likely possibility, as each is rooted in very different systems. This view is supported by Akaka, Vargo & Lusch (2013) who argue that the influence of background institutional context is an important determinant of network functioning in value creation. In healthcare, this would be consistent with Baron & Harris’s view of the complexity of applying service theory to healthcare exchanges (Baron & Harris, 2008), as well as to the contextual dimension to healthcare described by Provan & Milward (1999). In other words, professional participants will be influenced by relevant organisational requirements, policies and so on. For patients and carers too, they are argued to have cultural and societal norms that they relate to and are influenced by. In applying a SDN perspective, there is likely to be some fluidity in establishing common purpose for the participant networks in the service process. We did not link variations in SDN profile to service outcomes in this study, however we would suggest in future this might be a key relationship to establish for SDNs when exploring complex services. Following Moller (2013) and supported by Ragin (2006; 2008) our use of a classification technique from QCA to capture quality of network participation sets the scene for more considered investigations in future. There are critics of QCA, and some object to the role of the investigator in making structured judgments about inclusion of cases in set membership (cf. Bennett & Elman, 2006). However, the approach is gaining credence in many public sector settings (Rihoux, Rezsõhazy, & Bol, 2011), and the methodology does potentially allow for testing causal relationships.

Coordination
A further ramification of the diversity of participating network is the issue of coordination. Tax et al highlight the importance of the role of ‘coordination captain’ in the functioning of the SDN (Tax et al, 2013). The agent of co-ordination can vary from the service user in more straightforward services, to more typically the lead service provider, they argue. We have not specifically explored the agency of co-ordination in this study, however it is likely to need some strengthening for the application of SDN in this context. The CPA policy makes provision for a care coordinator being identified for the patient network (DoH, 1990). Meanwhile we identified that the co-ordination of the administration of the CPA review lay with the clinicians, whilst the commissioners played a role in coordinating the onward care pathway for patients. In the case
management literature, more complex case management is viewed as a challenge to co-ordinate and knit together multiple parties to best effect (Goodwin & Lawton-Smith, 2010). Therefore, it may be important to further evaluate the agency of co-ordination in CPA as being pivotal to managing network alignment and perhaps needing more role definition within the theory.

Vantage point
In contrast to others (Tax et al, 2013; McColl-Kennedy et al, 2012; Sweeney et al, 2015), we have developed the view of the SDN as focused on the collaborative space at the intersection with the respective participant networks. We argue that this extends the usefulness of the SDN concept for complex case management such as CPA. There are two particular advantages we would cite. First, we can now propose a framework for a more holistic approach by capturing variation across all participant networks. Previous work has tended to consider just a single vantage point (McColl-Kennedy et al 2012). Second, there is a distinction in the integrated care literature between the management of the long term case, for which there might be good protocols to follow, and management of the complex case where a multitude of factors including multiple disorders and social and personal factors might play a strong role, which has proved more resistant to research so far (Nolte & McKee, 2008). Baron & Harris (2008) make the point that there is a need to develop new approaches for understanding value creation in such complex settings, drawing attention to issues such as the principle service user being constrained, or there being issues of capacity or competence affecting ability to engage in the service process. These are all pertinent to the sample we studied. By reframing the collaborative process at the participating network level it has been more possible to usefully bring that population into focus for study. Developing opportunities for driving up the quality of network participation for patients within the service system addresses concerns raised in the Winterbourne report (Flyn & Citarella, 2012). Further, given that a similar pattern of SDN inadequacy has been raised in other examples of service failure in the UK (Francis, 2013), we would argue that our vantage point on the SDN could transfer to other settings.

If it is confirmed that our proposed vantage point of care at the intersection between networks can serve to better underpin the complex case literature, by linking different parts of the case
management literature to an overarching theoretical framework based on an understanding of this aspect of service network theory, it then becomes possible to progress some much needed conceptual integration across the field. For example, using a service network language, it becomes more feasible to link CPA to the rest of the case management literature, as called for by Simpson Miller & Bowers (2003a; 2003b).

In choosing a vantage point it is important to consider its justification. In this investigation it might be argued that the subjectivity of the investigator, or the choice of a discrete number of particular cases might influence the patterns that were drawn out. Cox and Hassard (2005) state that it is possible to adopt an appreciative stance, which accepts the use of essentially a partial view. It is, pragmatically, that we have highlighted opportunities for improvement in CPA practice, opportunities for using a theoretical framework to better support policy development and alternative avenues for exploring service improvement in healthcare that provides the justification for the chosen vantage point. This stance acknowledges that there is a degree of interpretation, but it encourages an ongoing process of enquiry, which fits well with the continuous learning culture in healthcare improvement.

Multi-party exchange
To date the literature is largely characterised by modeling value creation as dyadic exchanges. In contrast, in this study we have adopted a triadic perspective of value creation at the intersection between more than three participating networks, in line with Vedel, Geersbro & Ritter (2012). Each network has its own coherence and purpose. This adds a further level of complexity to the model of service exchange, and our findings illustrate the quality of participation of each network as distinctly independent. Therefore the policies, priorities and purposes that influence each of the participant networks is suggested as a further source of variability to explore. This view is supported by the perspective added by Akaka, Vargo & Lusch (2013) who argue that the influence of background institutional context is an important determinant of network functioning in value creation. In healthcare, this would be consistent with Baron & Harris’s view of the complexity of applying service theory to healthcare exchanges (Baron & Harris, 2008), as well as to the contextual dimension to healthcare described by Provan & Milward (1999).
is one aspect of the potential value generating system.

defined and, we have illustrated how a more developed view of the

**Contribution to case management and CPA development**

In this study we have proposed the SDN concept as an organising construct to be able to map and structure network aspects of CPA case management. CPA case management is a nationally accepted and implemented system in mental healthcare, which would support the transferability of the experience of this study to other settings. Further, in principle it is argued that wider case management can also benefit from experience in CPA (Lawton-Smith, ref). However, the investigation represented practice in a single provider organisation and it would therefore be important to further explore and confirm these findings in other CPA and case management settings.

The picture of SDN functioning in these CPA case reviews was found to be a helpful source of suggestions for service improvement. Suggestions ranged from awareness raising of the potential for enriching participation from networks to highlighting opportunities for better structuring the service engagement platform. The service literature would suggest that improvement to the SDN, associated with the service platform ought to result in improvement in service outcomes (refs). There would need to be further investigation to explore whether in fact empirically the variation in SDN quality does impact on valued service outcomes.

and ensuring SDN theory would suggest

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In this investigation, it was possible to identify areas
The application of the concept of the SDN to CPA case management was in this investigation a useful tool for developing a view on the quality of participation practices from stakeholder networks. CPA case management is a system-wide feature of UK mental healthcare provision, and it is therefore helpful to develop an approach that could be extended to studying CPA reviews elsewhere. In principle many of the issues for implementing CPA also correspond with the challenges facing Case Management generally (Lawton-Smith, ref), therefore the application of a SDN perspective would also be of interest for case management generally.

A particular feature of this investigation has been the capturing and highlighting the importance of the distinct case level perspective of the case management. Case management has dimensions of functioning at the policy level, the healthcare organisation level and at the case level (Wagner et al, 1999, Wagner et al, 2001). A similar pattern of a macro, meso and micro levels are observed in mainstream literature on service configuration (Akaka et al, ref). The approach we have reported in this study suggests one

Therefore, these findings potentially open up a systemic window onto the variation in CPA practices reported in the literature. In principle many of the issues for implementing CPA also correspond with the challenges facing Case Management generally (Lawton-Smith). Argument suggested is that it is not enough to understand consistency of CPA practice at the service organisation level, without aggregating an understanding the source of variation at the individual case levels. The use of the SDN concept in this investigation has shed light on how to view case level va

study has shed new light on the focus on the variation in practice in CPA,

**Contribution to case management**

- Provides an organising construct to be able to structure and map network aspects of case management.
- Step towards a more general conceptual/theory framework to underpin case management
- Orientate to the micro, meso and macro levels within case management service system

**Contribution to CPA**
• Practice variation is at the case level, not just a service level or regional health system problem
• Tool for exploring CPA function in other settings
• Specific suggestions and opportunities for improving participation in CPA case reviews

Implications for development of theory

The vantage point of intersection
• Consistent with other network literature e.g. Zolkiewski & Turnbull, 2002; Vedel et al, 2012; Provan & Millward 1999
• It is for the researcher to define the network of interest (Borgatti & Halgin, 2011)
• Other networks might very well also be described
• Pragmatic stance (Cox & Hassard, 2005)

Connecting to the value generating system
• CPA reviews are service entities that can make and keep promises (Freund & Spohrer, 2013)- connecting CPA SDNs to value generating process
• It would be interesting to investigate whether rich participation practices within SDNs translated to better valued outcomes for patients

SDN characteristics
• Characteristics of CPA SDNs varied in terms of:
  Shape
  Quality of interactions by participants
  Degree of alignment of participant networks

In this sample each SDN appeared to be uniquely configured

Contribution to SDN theory
• Application of SDN concept in complex service setting
• Intersection vantage point SDNs for complex service exchange
• Dimensions of Shape, activation and alignment to characterise SDNs

Model for aggregating individual cases and testing impact on valued service outcomes

The elicitation of these three distinct networks, with the service focus as at the intersection of these networks, is consistent with literature in health and the public sector (Provan & Millward, 1999; Ritter, 2000; Zolkiewski & Turnbull, 2002). This contrasts with other literature such as McColl-Kennedy et al (2012), which has instead focused on interpreting the service from just the patient network perspective. However, in eliciting the network picture we describe, it needs to be acknowledged that choices are made in attributing various agents to the respective participant networks. For example we associated the patient’s social worker with the patient network, but they might also at times have a role as part of the commissioner network. Also, we have chosen not to include
stakeholders with a more indirect interest, such as regulators, although others do include such parties (Zolkiewski & Turnbull, 2012).

It is important to note that the network perspective presented here is one of many networks that could have been elicited, both around CPA and the wider service process that might equally be of relevance and interest to consider. It is the researcher that defines the network, as indicated above (Borgatti & Halgin, 2011). Our investigation was structured as a pragmatic appreciative stance, as permitted in case study investigation (Cox & Hassard, 2005). In this study we were seeking to explore specifically the contribution of CPA reviews to the value generating process, as illustrated by their documentary reality. Whilst CPA itself is important as a service entity, able to make and keep promises (Freund & Spohrer, 2013), further exploration is required from other standpoints to investigate the phenomenon of CPA beyond this documentary reality and to better understand the role of CPA in relation to other service entities in the wider service network.

In terms of the qualities of the SDNs identified within this case series, the principle finding was of a marked variation between cases with evidence of rather rich quality of participation from some networks in some cases, contrasting with rather limited participation from some networks in others. Further, in only a few cases was there a lining up of rich participation from all three participating networks. In effect, each SDN had a rather unique participatory profile. This variation to CPA SDNs reinforces previous findings of service level variation in CPA configuration reported above (refs). These findings extend that picture to suggest that this variation in CPA experience extends right down to the case level within services. These findings have a number of potential implications for service understanding and improvement, and also give rise to implications for case management and service theory.

In this investigation we have attempted to adapt the SDN concept to a more complex service setting than has previously been considered. In this exploration a number of themes were identified that need further consideration when stepping up to investigate more complex service scenarios, both within models of service
management and models for case management. An exploratory study forms an important stage in theory building (Christensen, 2006). In framing these themes we would look to make progress towards theory testing.

**Aggregation**

In this exploration, whether as a result of variation in coordination or variation in factors driving participation, the result for this sample was that these cases presented quite distinct SDN profiles. A perspective on the ability to aggregate case experience is an important aspect to the SDN concept for Tax et al. (2013). Baker (2011) argues that developing and aggregating the individual case perspective is an important area for further development in healthcare improvement research. Meanwhile, Swinglehurst et al (2014) also argue that the customised approach to case level experience needs to be more influential in healthcare development. A similar perspective for healthcare has been proposed from a service marketing perspective (Elg et al. 2012). SDNs are a key component of the value generating system (Tax et al, 2013). Bringing the individual case experience into focus through the lens of the SDN paves the way to further exploring the impact of different styles of case coordination on valued outcomes.

In view of its complexity, the application of service theory to healthcare exchanges is challenging (Baron & Harris, 2008). In this exploration it has emerged that a number of key distinctions and adaptations were needed for the application of SDN.

**Variation in network alignment**

The fact that in only a minority of cases in this study appeared to be matched in terms of quality of participation calls for further consideration. On the one hand, in multi-party service exchange, Vedel, Geersbro and Ritter (2012) do highlight that participating networks might present at different levels of sophistication depending on maturity or purpose of the service exchange. On the other hand they do not specifically consider the impact of service alignment in terms of sophistication of interaction. It seems sensible to suppose that the functioning of the value generating system in CPA case management is likely to be more fruitful when the rich participation from all participating networks are optimised together. It would be interesting to further develop a framework to assess sophistication of participation, and to explore the impact of
alignment further in service network inter-connections. In terms of areas to consider, again it might be that in terms of the maturity of service relationships, this might evolve over time. In addition, however, each of the participating networks in this study are likely to be influenced by quite different priorities and purposes.

**Priorities and purpose**

Variation in priority and purpose for participating networks is a likely possibility, as each is rooted in very different systems. This view is supported by Akaka, Vargo & Lusch (2013) who argue that the influence of background institutional context is an important determinant of network functioning in value creation. In healthcare, this would be consistent with Baron & Harris’s view of the complexity of applying service theory to healthcare exchanges (Baron & Harris, 2008), as well as to the contextual dimension to healthcare described by Provan & Milward (1999). In other words, professional participants will be influenced by relevant organisational requirements, policies and so on. For patients and carers too, they are argued to have cultural and societal norms that they relate to and are influenced by. In applying a SDN perspective, there is likely to be some fluidity in establishing common purpose for the participant networks in the service process. We did not link variations in SDN profile to service outcomes in this study, however we would suggest in future this might be a key relationship to establish for SDNs when exploring complex services. Following Moller (2013) and supported by Ragin (2006; 2008) our use of a classification technique from QCA to capture quality of network participation sets the scene for more considered investigations in future. There are critics of QCA, and some object to the role of the investigator in making structured judgments about inclusion of cases in set membership (cf. Bennett & Elman, 2006). However, the approach is gaining credence in many public sector settings (Rihoux, Rezsöhazy, & Bol, 2011), and the methodology does potentially allow for testing causal relationships.

**Coordination**

A further ramification of the diversity of participating network is the issue of coordination. Tax et al highlight the importance of the role of ‘coordination captain’ in the functioning of the SDN (Tax et al, 2013). The agent of co-ordination can vary from the service user in more straightforward services, to more typically the lead service provider, they argue. We have not specifically explored the
agency of co-ordination in this study, however it is likely to need some strengthening for the application of SDN in this context. The CPA policy makes provision for a care coordinator being identified for the patient network (DoH, 1990). Meanwhile we identified that the co-ordination of the administration of the CPA review lay with the clinicians, whilst the commissioners played a role in coordinating the onward care pathway for patients. In the case management literature, more complex case management is viewed as a challenge to co-ordinate and knit together multiple parties to best effect (Goodwin & Lawton-Smith, 2010). Therefore, it may be important to further evaluate the agency of co-ordination in CPA as being pivotal to managing network alignment and perhaps needing more role definition within the theory.

Vantage point
In contrast to others (Tax et al, 2013; McColl-Kennedy et al. 2012; Sweeney et al, 2015), we have developed the view of the SDN as focused on the collaborative space at the intersection with the respective participant networks. We argue that this extends the usefulness of the SDN concept for complex case management such as CPA. There are two particular advantages we would cite. First, we can now propose a framework for a more holistic approach by capturing variation across all participant networks. Previous work has tended to consider just a single vantage point (McColl-Kennedy et al 2012). Second, there is a distinction in the integrated care literature between the management of the long term case, for which there might be good protocols to follow, and management of the complex case where a multitude of factors including multiple disorders and social and personal factors might play a strong role, which has proved more resistant to research so far (Nolte & McKee, 2008). Baron & Harris (2008) make the point that there is a need to develop new approaches for understanding value creation in such complex settings, drawing attention to issues such as the principle service user being constrained, or there being issues of capacity or competence affecting ability to engage in the service process. These are all pertinent to the sample we studied. By reframing the collaborative process at the participating network level it has been more possible to usefully bring that population into focus for study. Developing opportunities for driving up the quality of network participation for patients within the service system addresses concerns raised in the Winterbourne report (Flyn & Citarella, 2012). Further, given that a similar pattern
of SDN inadequacy has been raised in other examples of service failure in the UK (Francis, 2013), we would argue that our vantage point on the SDN could transfer to other settings.

If it is confirmed that our proposed vantage point of care at the intersection between networks can serve to better underpin the complex case literature, by linking different parts of the case management literature to an overarching theoretical framework based on an understanding of this aspect of service network theory, it then becomes possible to progress some much needed conceptual integration across the field. For example, using a service network language, it becomes more feasible to link CPA to the rest of the case management literature, as called for by Simpson Miller & Bowers (2003a; 2003b).

In choosing a vantage point it is important to consider its justification. In this investigation it might be argued that the subjectivity of the investigator, or the choice of a discrete number of particular cases might influence the patterns that were drawn out. Cox and Hassard (2005) state that it is possible to adopt an appreciative stance, which accepts the use of essentially a partial view. It is, pragmatically, that we have highlighted opportunities for improvement in CPA practice, opportunities for using a theoretical framework to better support policy development and alternative avenues for exploring service improvement in healthcare that provides the justification for the chosen vantage point. This stance acknowledges that there is a degree of interpretation, but it encourages an ongoing process of enquiry, which fits well with the continuous learning culture in healthcare improvement.

Multi-party exchange
To date the literature is largely characterised by modeling value creation as dyadic exchanges. In contrast, in this study we have adopted a triadic perspective of value creation at the intersection between more than three participating networks, in line with Vedel, Geersbro & Ritter (2012). Each network has its own coherence and purpose. This adds a further level of complexity to the model of service exchange, and our findings illustrate the quality of participation of each network as distinctly independent. Therefore the policies, priorities and purposes that influence each of the participant networks is suggested as a further source of variability to explore. This view is supported by the perspective added by
Akaka, Vargo & Lusch (2013) who argue that the influence of background institutional context is an important determinant of network functioning in value creation. In healthcare, this would be consistent with Baron & Harris’s view of the complexity of applying service theory to healthcare exchanges (Baron & Harris, 2008), as well as to the contextual dimension to healthcare described by Provan & Milward (1999).

Conclusion

This is the first structured exploration of the concept of the service delivery network in CPA case management in UK learning disability care. This illustrates how it is possible to bring into focus aspects of the shape and functioning of the parties that are involved in complex case management, an issue increasingly seen as important for understanding care integration and service delivery improvement. In this study we have The particular findings in this study replicate that there is an issue of variation in practice to be found specifically in CPA case management in mental heath, and goes further to suggest that this practice variability might penetrate down to the individual case level. However, by developing a rich qualitative picture of variability in SDN functioning, we are able to introduced a more nuanced view as to how factors such as variation in style of participation from all agents, the evolution of the service relationship over time and their interactions might all play a role. Within the framework of the SDN as a component of the service value generating system, we would expect that these factors ought to be demonstrably linked to valued service outcomes. This would be an area for further investigation.

A further contribution of this study has been to usefully adapt and extend the concept of the SDN from its application to essentially dyadic exchanges in simpler ego-networks to a much more complex service scenario involving multi-party exchange and interactions, with a service focus at network interfaces as being a more suitable vantage point. This development is of interest in
supporting mainstream management looking to a better aggregated understanding of case level service experience, and also in suggesting pathways that might lead to better research frameworks for studying wider case management across healthcare, as well as complex service scenarios more generally.

Most importantly, the justification of our essentially pragmatic exploration of a specific cohort of cases within a specific service has been the ability to signpost practical suggestions for service improvement. For this service, without needing to advocate for extra resources, we have been able to demonstrate an opportunity for enhancing the quality of participation and interconnection of all the participating networks to the level of the best cases seen. We have been able to suggest the value of better encoding the purpose and aims of the service proposition into a more consistent service platform to benefit all parties. Also, this in itself would form the opportunity for a further round of service evaluation and improvement.
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