

A case study: Developing a capitation arrangement within a regional NHS system

Joanne Buckle, FIA
Tanya Hayward, FIA



In this paper, we present a case study to discuss the process and considerations for developing an Accountable Care System (ACS) in a regional National Health Service (NHS) system.

This model involves having a risk-bearing entity (in this case a prime risk contractor (PRC)), responsible for the budget and quality of services commissioned through this structure. This paper builds on the ideas laid out in our previous paper ‘How capitation arrangements can be applied to deliver the NHS Sustainability and Transformation Plans’¹ and how we consider using the principles of traditional capitation arrangements in an environment where stakeholder roles differ and the implementation of various key capitation principles is not possible.

The ACS environment

The ACS was developed for a subsystem of the NHS which included a small number of the 211 local care commissioners in England, ‘the payers’, responsible for commissioning services within their allocated catchment areas. ACS design may also include social care services, which are provided by multiple local authority organisations that operate within the local area.

The PRC had the role of facilitating the design of the ACS, coordinating stakeholders and care providers and eventually commissioning services provided through the ACS model while potentially taking on a share of the risk. Figure 1 illustrates how the system may operate with and without a risk-sharing arrangement and PRC.

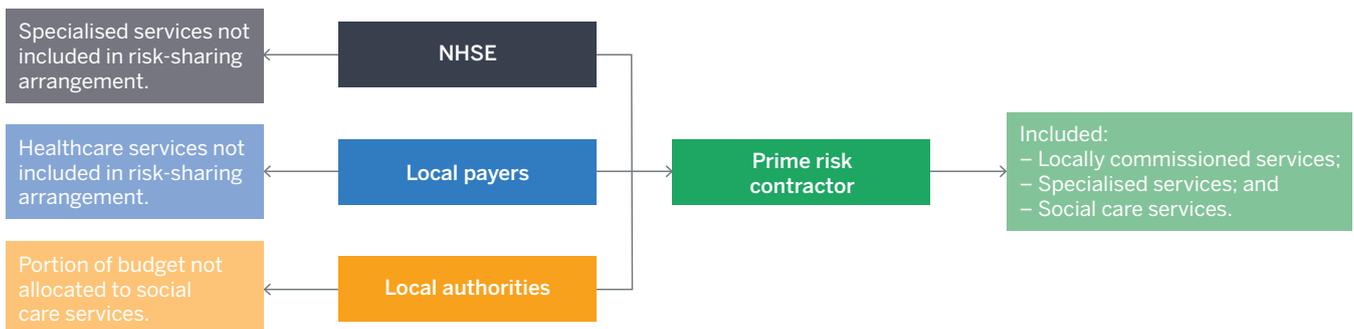
FIGURE 1: ILLUSTRATION OF REGIONAL NHS SYSTEM WITH AND WITHOUT RISK-SHARING ARRANGEMENT

Regional system funding flow with no risk-sharing arrangement



Regional system funding flow with risk-sharing arrangement

Services not included in risk-sharing arrangement



1 Hayward, T. & Buckle, J. (May 2017). How Capitation Arrangements Can Be Applied to Deliver the NHS Sustainability and Transformation Plans. Milliman White Paper. Retrieved July 6, 2017, from <http://www.milliman.com/uploadedFiles/insight/2017/capitation-arrangements-nhs-stps.pdf>.

Our involvement

Our contribution to the ACS design included the following services:

1. A system-level actuarial analysis

Using cost, activity and population data for the included payers and local authorities, we performed an actuarial analysis including the components described below.

Actuarial cost model

The actuarial cost model summarised cost and activity data at a service category level. This initial analysis was conducted to:

- Provide a high-level understanding of how cost and activity are distributed within the system and how this experience differs by payer area
- Highlight where there were gaps in the data provided which would require us to make assumptions
- Use this as a basis for our follow-on analyses described below

Inpatient benchmarking model

Our inpatient benchmarks helped to identify potentially avoidable admissions and bed days by comparing the inpatient activity for the payers included in the ACS with a standard of what is possible and achievable with optimal infrastructure and best practice care. The benchmarks are based on external international benchmarks rather than being comparisons with other NHS local economies that may also have suboptimal infrastructure and constrained capacity. The benchmarks are actuarially adjusted for the age/sex mix of the relevant population.

The benchmarks range from representing ‘Loosely Managed’ to ‘Well Managed’ systems but these are not extreme ends of a spectrum, as shown in Figure 2. We typically set our goal benchmark to have a 75% Degree of Health Management (DoHM) which represents a 75% to 25% weighting to the Well Managed to Loosely Managed benchmarks, respectively. This level of DoHM is selected as it represents a goal that is challenging, yet achievable. Conversely, a 100% Well Managed level is only achieved by a very small proportion of health systems.

Projection model

Our actuarial projection models built up an estimated cost for the population to be covered by the ACS over a five-year time period. These estimates are developed at the service

line level, projecting the anticipated cost and activity separately for each service under various scenarios and taking into account anticipated changes in the population size and structure (age/sex mix) over the projection period. Scenarios include varying the cost and activity trends as well as modelling projected costs and activity under a specified degree of health management level.

Financial model and care management impact model (CMIM)

To consolidate the analyses described above and provide greater analytical flexibility for the PRC, we developed a financial model that included the above-mentioned analyses as well as a care management impact model (CMIM). This financial model allowed the PRC to flex various assumptions and generate a number of scenarios to model the impact of various potential outcomes for the ACS. For example, varying cost and activity trend rates by service and varying provider market share. In addition, the CMIM allows the modelling of the impact of redirecting excess inpatient admissions (identified by the inpatient benchmarking model) to alternative settings (i.e., either daycase settings or an admission did not occur at all).

Risk share/gain share model

To understand how the ACS cash flows and risk share/gain share mechanism may operate in practice, we built a series of risk share/gain share models. These models took into account changes in the population size, risk profile, funding allocations, administration fees and how savings distributed to the various stakeholders may be affected by the achievement of predetermined quality metrics.

2. Contract principles development

To aid the contract arrangement development process, we participated in a series of workshops with stakeholders including the payers, local authorities and the PRC’s organisation. The workshops aimed to:

- Engage with stakeholders to ensure that the principles being considered in the contract development were aligned to the particular characteristics of the systems and the overarching policy framework.
- Discuss the key financial principles, reach agreement between stakeholders on how they may apply to the ACS and make recommendations based on this process.
- Identify potential internal and external financial risks associated with the proposed ACS.

FIGURE 2: DESCRIPTION OF WELL-MANAGED AND LOOSELY MANAGED SYSTEMS

	OVER MANAGED	WELL MANAGED	LOOSELY MANAGED	UNDER MANAGED
USE OF EVIDENCE BASED CARE	Strict compliance to evidence base without taking individual patient circumstances into account	Evidence combined with patient centric-base care	Limited compliance to evidence base	Non-compliance to evidence base
ACCESS TO SERVICES	Restrictions on access to services that modify or treat disease	Restrictions on access to services that have little or no impact on health	Few restrictions to services that have little or no health impact	No restrictions on access to services that have little or no impact on health
INCENTIVES	Overused	Outcome based	Not linked to cost control	Perverse

Internal and external risks

A key outcome from the workshops was to identify the potential financial risks associated with the arrangement. The purpose of identifying these risks was to:

- Determine which risks could and could not be absorbed by the ACS.
- Include monitoring and mitigation strategies for these risks in the contract design where possible.
- Highlight how these risks may trigger a review of the contract.

To facilitate this discussion, we began by asking the stakeholders to consider:

- What key events/changes have happened in the past that have had a significant impact on the system?
- Are there any events that are likely to happen in the future that may have an impact on the system?
- What are the key drivers of cost and activity in the system?

We also highlighted that the identified financial risks would fall into various categories. For example, they could be economic or political and could affect the payers, the local authorities or both. It is also important to note that some of the risks could exist independently of whether the ACS contract exists or not, yet they should be considered nonetheless. Figure 3 lists examples of the risks that were identified during the workshops.

FIGURE 3: EXAMPLES OF PAYER AND LOCAL AUTHORITY RISKS

PAYER RISKS
<ul style="list-style-type: none"> ▪ Changes to tariff rates with little notice provided before changes are implemented ▪ Changes in funding allocation formula ▪ Trends in the cost of drugs
LOCAL AUTHORITY RISKS
<ul style="list-style-type: none"> ▪ Reduction in carers ▪ Changes to the Care Act or other relevant regulation ▪ Local authority budget not necessarily ring-fenced for social care
GENERAL RISKS
<ul style="list-style-type: none"> ▪ Having to achieve the same target with less funding ▪ Increase in the living wage with no commensurate increase in funding ▪ Ability to manage volatility is dependent on population size ▪ Increase in asylum seekers could increase population size

Contract principles development considerations

Figure 4 highlights the main items that were considered during the contract principles development process. ACS-specific considerations and recommendations were developed using traditional capitation considerations as a guideline. The most notable difference between a traditional capitation arrangement and a regional NHS ACS is that within the ACS the funding flows are fixed. Therefore, even if a particular capitation fee is calculated on a theoretical basis, the actual funding flow may not be sufficient to cover this amount. In this case, the capitation design would be revisited with potential changes to the included services/eligibility criteria being made.

FIGURE 4: CONTRACT DEVELOPMENT FINANCIAL CONSIDERATIONS

CONTRACT CONSIDERATIONS	TRADITIONAL CONSIDERATIONS	ACS-SPECIFIC CONSIDERATIONS
1. DEFINE THE POPULATION	<ul style="list-style-type: none"> ▪ Whole population/subset. ▪ Geographical. ▪ Data availability and accuracy. ▪ Prospective or retrospective. 	<ul style="list-style-type: none"> ▪ Ideally define population according to registered lives. However, boundaries between payer areas and local authorities are not consistent, which makes defining the social care population difficult. ▪ Social care capitation could be triggered as a person becomes eligible for social care. ▪ Unregistered lives are of an unknown quantity. They could be carved out and covered through a separate earmarked funding pool. ▪ List inflation.²
2. DEFINE THE SERVICES, SET A HISTORICAL BASELINE AND ESTIMATE TREND RATES	<ul style="list-style-type: none"> ▪ Data availability and accuracy. ▪ Ability to provide services. ▪ Assess current and likely future waiting lists. ▪ Define services to be carved out of contract, e.g., services that are high cost and low frequency. 	<ul style="list-style-type: none"> ▪ ACS design included all services yet complete data was not available for all services. We used payers' financial statements to reconcile with the data we were provided and to supplement our figures where detailed data was not available. ▪ Included services were defined according to how the ACS believed it could achieve savings/efficiencies. ▪ When setting the baseline cost, consider any changes that are scheduled to occur between the base year and contract start date. ▪ Consider variation in baseline costs between included payers and compare baseline costs with current levels allocated funding.

2 List inflation occurs when deceased patients or patients who have moved out of the payer's catchment area are not removed from the General Practitioner (GP) Register.

FIGURE 4: CONTRACT DEVELOPMENT FINANCIAL CONSIDERATIONS (CONTINUED)

CONTRACT CONSIDERATIONS	TRADITIONAL CONSIDERATIONS	ACS-SPECIFIC CONSIDERATIONS
3. RISK ADJUSTMENT	<ul style="list-style-type: none"> Understand risk profile of population in base year and subpopulations included in contract arrangement if appropriate. Measure how risk profile of covered populations changes over time and adjust fees accordingly. 	<ul style="list-style-type: none"> Current funding allocation formula is already a form of capitation payment with risk adjustment. Consider using a consistent risk adjustment methodology to avoid the capitation rate diverging significantly from the level of funding available, as this would introduce undue complexity to the administration of the contract. Alternative risk adjustment could be considered to calculate a 'theoretical' risk adjustment factor to measure how theoretical and actual risk adjustment factors, capitation rates and overall contract performance metrics differ.
4. RISK SHARE/GAIN SHARE PROVISIONS	<ul style="list-style-type: none"> Perform regular contract monitoring to measure contract performance against predetermined definitions of success. Determine whether fees will be rebased each year following recent performance or if they will be fixed at the start of the contract. Define quality metrics and how this affects the available savings for providers. Consider how savings will be distributed amongst stakeholders (funders and providers). Consider extreme scenarios and how they may affect risk share/gain share distribution. 	<ul style="list-style-type: none"> Caps on savings shares. ACS may receive an administration fee, separate from funding for medical costs or activity. Compare 'actual' and 'theoretical' risk profile, capitation fee and contract outcomes.

Conclusion

In regional NHS environments, implementing risk-based contracts that are in line with the principles outlined above can be effective mechanisms for an ACS. These contracts are centred on the population and encourage collaboration, working across organisational boundaries and transforming the system to deliver high-quality care to the covered population in the most cost-effective manner.

Designing a risk-based arrangement for this purpose requires careful consideration of how the traditional principles of capitation may and may not apply in this context, particularly because the funding flows differ from the traditional insurance environment. A detailed understanding of the internal and external risks (and how they may potentially trigger revisions to the contract terms), as well as a clear definition of the population and services covered, are a crucial element in setting the baseline costs, considering the options for a risk adjustment methodology and, finally, considering how contract performance can be measured and calculating any resulting risk share/gain share values.

CONTACT

Joanne Buckle
joanne.buckle@milliman.com

Tanya Hayward
tanya.hayward@milliman.com

©2018 Milliman, Inc. All Rights Reserved. The materials in this document represent the opinion of the authors and are not representative of the views of Milliman, Inc. Milliman does not certify the information, nor does it guarantee the accuracy and completeness of such information. Use of such information is voluntary and should not be relied upon unless an independent review of its accuracy and completeness has been performed. Materials may not be reproduced without the express consent of Milliman.