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Complex programme evaluation of a 'New Care Model' Vanguard; a shared commitment to quality improvement in an integrated health and care context

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Title: Complex programme evaluation of a 'New Care Model' Vanguard; a shared commitment to quality improvement in an integrated health and care context

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- **Keywords;** Healthcare, Evaluation, Integrated care.

Abstract: NHS Vanguards, under-pressure to perform, required better contracting and data management arrangements with evaluation teams, to ensure that integrated service outcomes could be reported effectively. This communication reflects the experience of evaluating an NHS Vanguard and suggests how academic teams can improve capacity for complex programme evaluation of rapid improvements in integrated services. This should be based on a shared commitment to data collection and management and robust knowledge exchange processes to report systems change and sustainability. The identifying features of the particular site have been withheld.

Strengths and limitations

- The identification methodological challenges in complex programme evaluation
- Learning presented from a single Vanguard site
- Recommendations for improved outcomes and capacity for systems-level evaluation

Background

In 2014/15 NHS England created funding for 50 New Care Model "Vanguard" visions of best practice in the NHS [1] built on the premise that a number of areas in England would spearhead the NHS Five Year Forward View [2] and build local quality improvement leadership capacity. While the funding for the three year projects was from central government, the inspiration for the planning and implementation of each project was based on local priorities with stakeholders from the health economy contributing to the plan, led

by local decision makers and practitioners [3]. An important objective of the programme was to design new care models that could be replicated quickly across the NHS and the aim of evaluation was to generate an iterative programme theory to explain the Vanguard improvement activity; to systematically report system change methods and cost savings. In most cases the evaluation methods included complex, theory-led process evaluations (4,5,6) based around the commissioning processes and the multidisciplinary teams. Methods also included some health economic evaluation to assess cost of delivery and the value of the service, measured against previous service provision. Local implementation [7] was based on the idea that health communities would know and understand the opportunities for health improvement and prevention [8] and make a radical step change in systems re-design [9].

Vanguard Evaluation

Evaluation processes were variously negotiated by each Vanguard site in line with NHS England guidance on the evaluation design; with the ultimate goal of comparing results and finding across all sites [10]. Programme teams contracted with evaluation teams to enable the generation of quasi-scientific correlations and testing of generative causal assumptions; to establish effectiveness of intervention in a 'real-world' context. Some £60 million was allocated to the evaluations of the 50 Vanguards reporting in March 2018, by which time NHS England expected individual Vanguards to be sustainable without further national funding for transformation [11]. They were asked to resist the pressure to provide positive signs of impact, at the expense of learning [12] but the urgency of the demand for results grew as the programme progressed.

Complex programme evaluation included economic evaluation but also sought to identify a range of active ingredients and disruptive 'innovations'. Local imperatives were identified across the health and care economy and Vanguard teams came under pressure to report measurable improvements through generating organisational case study of the changes in practice [13]. The design of the evaluation was agreed with the Vanguard programme team to access a range of data; planning to achieve an understanding of complex processes and the effects of changes within a primary care system (PACS).

Relationships between evaluation and delivery teams

The evaluation was registered as a service evaluation with the research office of the Healthcare Trust and approved by the University Ethics Committee.

An utilisation-focused approach [14] to the evaluation aimed to strengthen relationships with regular communication; creating posts across organisations and fostering a culture of openness and transparency. Several qualitative data sets were collected and collated between October 2016 and November 2017 capturing the views and values of those involved in planning and delivery of the integrated community service model. The aim was to develop, test and refine a programme theory that supported implementation [15] allowing managers to identify who the primary end users of the evaluation findings might be; what evidence they require and how this could be formed into a sustained value proposition across the system.

The Programme team planned three separate service initiatives as 'rapid improvement cycles' over 18 months (the evaluation team was not involved in the first stage). The complexity of the change was compounded by separate organisational governance arrangements; a lack of clarity and accountability in decision-making processes; different tiers of management and some detachment at Board levels [16]; gatekeeping of service-delivery teams and short term contracts for practitioners making actual detailed changes to operations. The management team was constantly being reviewed by the Vanguard Board and also experiencing reduced and delayed funding from NHS England; making it difficult to manage local finances. Capacity to use the evaluation was limited and despite the evaluation team possessing a wealth of experience and knowledge regarding integrated intermediate care teams and effective multi-disciplinary and inter-organisational working, (see leadership in integrated teams [17]) the Vanguard programme team preferred to develop plans iteratively through learning-by-doing in service.

The requirement to implement a local evaluation as a condition of funding for service improvement can create a situation in which the intrinsic value of evaluation to the service innovation is not always clear for the delivery team. Recent innovations in evaluation

methodologies and approaches (such as developmental or Principles-focused evaluation [14, 18], which focus on the usefulness of evaluation evidence and the development of effective, trusting relationships are generally not well understood; it can take time for service providers to shift towards collaborative working and finding equilibrium on the trust/control nexus (at individual and organisational levels [19, 20]). Similar findings, have emerged from other NHSE national innovation programmes; demonstrating the time required to develop effective working relationships in complex evaluation situations,(see NHSE Healthcare Technologies Testbed Programme [22]).

As a consequence, the relationship between delivery team and evaluation team did not develop. Whilst every attempt was made to access staff, patients and all available data, as is usually the case with 'real-world' evaluation, the data collection and sharing was always retrospective to the decision-making processes and secondary to programme management priorities. Rapid improvement cycles were planned without use of the interim evaluation report data and without sufficient notice to coordinate evaluation findings with decision-making requirements. The evaluation team employed an 'embedded' evaluator to access and present data but the approach achieved limited success due to the continual request for formal changes to contractual arrangements, a lack of organisational capacity to generate patient outcome data and organise new working processes. Evaluation teams require knowledge- exchange with Programme team to enable the prioritisation of data collection and the continuous improved use of local knowledge and research evidence; to enable the analysis and reporting of service outcomes.

Data management and capacity

Evaluation involves a commitment to the normalisation of data collection, visualisation and analysis, shared between partners. There was a mismatch between the data requirements for the team intervention and the system-level change which was exacerbated when the programme chose to scale back the intervention to one locality in the face of reduced funding. The Programme delivery team prioritised the national programme requirements to demonstrate rapid, large-scale changes in process-performance indicators at a system-level but this was at the expense of operational implementation difficulties and the effectiveness of the integrated team intervention. Key stakeholders were unable to agree on a set of

outcome metrics that best reflected population health and fitted with the programme theories of change. The failure to discriminate between the different level of demands of a service transformation can result in a constant 'flux' or extreme change and even the premature closure of interventions that prove to be difficult to implement.

Qualitative data provided an important early insight into the adoption of new processes and systems at service level for example, one member of the 'Vanguard Delivery Board' contributed through in-depth interviews;

"We've got a cross-organisational group that comes together. So we do share all of those metrics. But a lot of them they're quite complicated. …So one of the ones that was shared with us was around… the percentage of beds where people are in them who could potentially be somewhere else. But the definition that's used wouldn't be the definition, for me getting that headline data is great, but once you start querying that data you realise that your understanding of what that means isn't actually what's being collected. … So it's that understanding of each other's organisation, and what those metrics mean, not actually making assumptions based on what you think things mean". (Vanguard Stakeholder).

Data collection and management needed to be strategically focused on consistent interventions that are able to be evaluated effectively. In this particular case the lack of capacity to identify and consistently collect population outcomes meant that Vanguard metrics did not reflect the additional benefit of the integrated service to patients and that in many cases the metrics that were being collected were not fit for purpose and failed to show how health outcomes were being achieved.

Data and technology were acknowledged as needing to play a central role in realising the integrated care plan; helping clinicians use the full range of skills and target the needs of specific populations as well as reducing bureaucracy and enabling systems transformation. The critical challenge of building capacity to collect and collate data and the analytic capability to use it in commissioning decisions was central to deliver future services. Data needed to be accessible to stakeholders, paper-free at the point of care and connected to other services and systems [23]. However, many Vanguards have been slow to collect and

collate anything other than service level data. Population health outcomes remain elusive, in spite of the original commitment to showing the impact that changes would have on patients, staff and the wider population.

Economic Evaluation

A mixed method economic evaluation aligned to the national requirements started with the broad remit of exploring the costs and health related impact of the new model of care, compared to current practice. However, as reflected above, and in common with a number of other Vanguards [24], challenges in accessing meaningful patient outcome data, a time-limited period with repeated rapid redesigns, significantly hampered the analysis.

The economic evaluation considered the cost of the Vanguard programme alongside a time series analysis of secondary care (hospital) activity (e.g. emergency bed days, length of stay and admissions). It demonstrated that there was no observed impact, negative or positive, that could be directly associated with the service re-design over the time period analysed. The insufficient evidence of a return on investment was the only element of the evaluation that the programme team used to inform the on-going planning decisions, unfortunately leading to a dis-continuation of the integrated team. The inability to offset the cost of service provision and no evidence of improvement on patient health meant that the Vanguard was unable to continue beyond the programme period.

The economic evaluation, sought a comparator site using a synthetic comparator [25] a sample area, assessing secondary care costs in an attempt to show short term benefit. The intervention was defined as integrated community services and the causality of the effect of the integrated team needed to be disentangled from other common causes of variation such as winter flu or work-force changes. A good understanding of the systems influences are critical to programme evaluations [26] but this requires considerable embedded knowledge and understanding to be shared across the programme and evaluation teams.

The true cost of the intervention is an important element of the economic analysis [26]. In many of the Vanguard programmes, the funding of the service was made up of a

combination of central funding a locally provided in-kind provision and the implications are important for the evaluation. For example, the redeployment of staff to the new programme is typically very challenging to quantify, even in the short term. Other factors included; the incremental cost of the new service; the additional national funding and critically the ability of the programme management team to understand and confirm the costs. The marginal cost of funding the programme long-term, with many of the in-kind services being provided alongside activities may not be sustainable on a permanent basis.

These short term workforce changes i.e. through secondments and short term appointments go to the heart of the sustainability of what the programme is going to achieve. The National Audit Office have recently recognised that there were 'missed opportunities' [11] for the required depth and scale of transformation across the system, particularly in relation to the delivery that achieved economic sustainability and full value for money of the programme. Service outcomes related to existing staff in short term posts and variation in hospital activity was unlikely to be a good indicator of the benefits achieved through integrated team practice and the long term patient health and wellbeing.

While ideally any evaluation would incorporate a life-time consideration of the health of the patient, and other relevant social outcomes [27] such time-intensive research was clearly not possible in the Vanguard. One insight was fed back to support improvement in the range of quality and cost indicators needed to show the return on investment, including but not limited to patient health outcomes;

"….. I think it's quite difficult for individual organisations to let go of control. So whilst I think at the moment we've got people working in an integrated office, so out of one office, I wouldn't yet say we've managed to get an integrated team. ……..we're on that journey, and we are working towards becoming one team. But culturally and how everybody works, and how all the different organisations work, and what that looks like is quite difficult. (Vanguard Stakeholder)

Improving capacity for complex programme evaluation

Taking the knowledge and experience into account there are four initial areas for improvement in the planning for academic evaluation to embed within policy-driven transformation programmes.

Increase access to integrated services: Evaluation teams require specific access to managers and the interdisciplinary workforce [28]. Consensus on General Practitioners' views and perceptions of the systems change are required to identify the variation in choices and priorities for integrated working [19]. Interdisciplinary working remains under-developed in primary care and evaluation both highlights good practice and shares information about the most effective local improvements, based on those designed to provide rapid access [29]. Clinical leadership is often under considerable operational pressure and yet critical to the success of the integration of professional practices [17] and so a commitment to allowing patient-facing teams to share experience and express priorities for integration is a core requirement.

Develop contractual arrangements: Evaluations designed to inform innovations in service delivery, have pre-established stages and reporting requirements. Whilst evaluations can be rapid-cycle and feedback can be informal in nature, there is a requirement to maintain a timetable of activities within a relatively stable service delivery model, to allow for setting up data collection processes and to analyse and interpret these data. The evaluation team is often able to become an additional resource through the sharing of research evidence and comparative experience from other health context. This model of evaluation practice needs to be introduced and agreed with the programme team and contracted carefully; in such a way as to make clear the purpose and value of the partnership and the purpose, particularly associated with site visits and observations [30]. Evaluation planning should include opportunities for shared learning through training and reflection; infrastructure development through engaging community and professional stakeholders and formative and summative evaluation [23].

Economic evaluation: Evaluation teams require programme leaders to co-design the model of health economics recognising not only the return on investment but the value of the learning and leadership within the system. The increasing value on social justice in economic terms is a significant test of the local commitment to the cost and return on sustained organisational learning [31]. There is a need for programme managers to understand the metrics by which population health improvements are being assessed and challenge the assumption that secondary care metrics, i.e. emergency admission data, is satisfactory. For example- General Practitioners who reported local benefits to their engagement with particular patients or patient groups can be quantified and used to indicate an outcome against the value proposition. The design of the economic evaluation needs to reflect the original values associated with the shared quality improvement goal which in this case had three facets; improving care, managing demand and reducing hospital admissions. The attempt to identify value and attribute costs at systems level is required before integrated care services can be sustainably commissioned [29].

Building capacity for evidence-based change: Complex evaluation seeks to deliver the support for decision-making for services in 'practice-based' commissioning [32] and NHS England supported Vanguards to investigate their concerns about the level of unplanned admissions and the range of interventions that could be effective in reducing these [33], with a view to re-designing care and promoting health improvement. While routinely collected metrics may be used to assess the quality and effectiveness of care provision, the choice of metric needs to be a careful consideration in relation to quality and cost impact. Programme teams should invite evaluation that reviews the research evidence and share the findings with stakeholders, committing time and structural change to achieve the kinds of education/self-management, exercise/rehabilitation and telemedicine interventions with selected patient populations [34].

Conclusion

Complex programme evaluation was a requirement of each NHS Vanguard sites, designed relative to the local improvements that were planned with services and across health and care systems. An academic team was recruited to increase capacity, insight and report findings of a local systems transformation. Improved evaluation processes may be needed

to showcase the value of the investment in 'new ways of working' and to sustain system outputs. Better evaluation outcomes would be achieved with a) increased access to the frontline services and the process of integration b) contractual processes that enable evaluation teams to share interim findings and engage with complex dilemmas across the system c) clarification on a range of quality outcome metrics that would inform an economic evaluation thus helping commissioning to resist the considerable pressure to view short term cost savings and d) capacity building associated with the relevant research evidence to support local planning. National evaluation is currently being undertaken to identify the sustained changes that have taken place.

Words- 2934

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- **Authors' Contributions:** SFD drafted the communication with contributions from SH and SA on the content which was based on Vanguard evaluation experience. All authors contributed to the final version and approve the submission.
- **Funding statement:** This work was supported by NHS England as a Vanguard evaluation.
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Strengths and limitations

- The identification methodological challenges in complex programme evaluation
- Learning presented from a single Vanguard site
- Recommendations for improved outcomes and capacity for systems-level evaluation

Background

The closer integration of health care and social care has been a policy goal of successive UK governments for over 40 years who in common with most advanced western countries face the challenge of an ageing population with a range of health and care needs. In 2014/15 NHS England created funding for 50 New Care Model "Vanguard" visions of best practice in the NHS [1] built on the premise that a number of areas in England would spearhead the

NHS Five Year Forward View [2] and build local quality improvement leadership capacity. While the funding for the three year projects was from central government, the inspiration for the planning and implementation of each project was based on local priorities. Stakeholders from the health economy contributed to the plans, with local decision makers and practitioners, aiming to work together to achieve system-level improvements [3]. An important objective of the programme was to design new care models that could be replicated quickly across the NHS. Local implementation [4] was based on the idea that health communities would know and understand the opportunities for health improvement and prevention [5] and make a radical step change in systems re-design [6]. There are a variety of reasons that progress towards integrated care has been slow, including funding and accountability arrangements and separate regulatory regimes that assess the performance of individual organisations but not the system as a whole [7]

The Vanguard planned three separate service initiatives as 'rapid improvement cycles' over 18 months (the evaluation team was not involved in the first stage). The complexity of the change was compounded by organisations collaborating without the benefit of shared governance arrangements. There was a lack of clarity and accountability in decision-making processes with different tiers of management and some detachment at Board level [8]. Organisational gatekeeping of service-delivery teams and short term contracts for practitioners made planning for operational delivery very problematic and local clinical leadership was reduced due to a significant reduction and delayed funding from NHS England.

The aim of evaluation was to generate an iterative programme theory to explain the Vanguard improvement activity across a health and care system; to systematically report system change methods and cost savings. In most cases (nationally) the evaluation methods included complex, theory-led process evaluations (, 9 10,11) based around the commissioning processes and the multidisciplinary teams. Methods also included some health economic evaluation to retrospectively assess the cost of delivery and the value of the service, measured against previous service provision. This paper discusses the retrospective learning from one evaluation process in one NHS Vanguard site.

Vanguard Evaluation

Evaluation processes were variously negotiated by each Vanguard site in line with NHS England guidance on the evaluation design; with the ultimate goal of comparing results and finding across all sites [12]. Programme teams contracted with evaluation teams to enable the generation of quasi-scientific correlations and testing of generative causal assumptions; to establish effectiveness of intervention in a 'real-world' context. Some £60 million was allocated to the evaluations of the 50 Vanguards reporting in March 2018, by which time NHS England expected individual Vanguards to be sustainable without further national funding for transformation [13]. They were asked to resist the pressure to provide positive signs of impact, at the expense of learning [14] but the urgency of the demand for results grew as the programme progressed.

Complex programme evaluation included economic evaluation but also sought to identify a range of active ingredients and disruptive 'innovations'. Local imperatives were identified across the health and care economy, for example, re-designing community services (nursing and allied health professionals) to work closely with general practice and achieve better patient outcomes. Vanguards came under pressure to report measurable improvements through generating organisational case study of the changes in practice [15]. The co-design of the evaluation was therefore an important element of the Vanguard to enable access to systematically collected and collated data that could describe and explain the the complex processes and the effects of changes within a primary care system (PACS).

Evaluation Processes

The evaluation was registered as a service evaluation with the research office of the Healthcare Trust and approved by the University Ethics Committee.

Utilisation-focused methods [16] aim to meet the demand for the "social-constructivist" approaches that reflect the needs of implementation processes in healthcare. . To evaluate effectively, there is a need for a full understanding of evaluation's nature, purposes and concepts [17] and to establish a working relationship and understanding of the priorities and needs for data and knowledge within the health care provider group. To this end several qualitative data sets were collected and collated between October 2016 and November 2017 capturing the views and values of those involved in planning and delivery of

the integrated community service model. The aim was to develop, test and refine a programme theory that supported implementation [18] allowing managers to identify who the primary end users of the evaluation findings might be; what evidence they require and how this could be formed into a sustained value proposition across the system.

The requirement to implement a local evaluation was a condition of funding the Vanguard. The evaluation team were brought together because of their experience and willingness to work with a health system and collaborate in the development of evaluation objectives for the Vanguard. . Key principles of the evaluation [16, 19] included a commitment to the usefulness of evaluation evidence and the development of effective, trusting relationships with the key stakeholders. It can take time for service providers to shift towards collaborative working and finding equilibrium on the trust/control nexus (at individual and organisational levels [20, 21]). Similar findings, have emerged from other NHSE national innovation programmes; demonstrating the time required to develop effective working relationships in complex evaluation situations,(see NHSE Healthcare Technologies Testbed Programme [22]).

In this case, the relationship between Vanguard and evaluation team did not develop as hoped. Whilst every attempt was made to access staff, patients and all available data, as is usually the case with implementation evaluation, there was limited capacity to use the findings in planning for Vanguard activity. Rapid improvement cycles were planned without use of the interim evaluation report data and without sufficient notice to coordinate evaluation findings with decision-making requirements. The evaluation team employed an 'embedded' evaluator to access and present data but the approach achieved limited success due to the continual request for formal changes to contractual arrangements, a lack of organisational capacity to generate patient outcome data and organise new working processes. Evaluation teams require knowledge- exchange with the Vanguard to enable the prioritisation of data collection and the continuous improved use of local knowledge and research evidence; to enable the analysis and reporting of service outcomes.

Difficulties with Data

Evaluation involves a shared commitment to the normalisation of data collection, visualisation and analysis, shared between partners. The Vanguard, working closely to the specification of NHS England sought to meet data required by the national programme that demonstrated rapid, large-scale changes in process-performance indicators at a system-level, i.e reduction in attendances at Emergency Departments. This was at the expense of data collection and analysis that could be used for operational planning. Key stakeholders were unable to agree on a set of outcome metrics that best reflected population health and fitted with the programme theories of change. The failure to discriminate between the different level of data need for a service transformation can result in a constant 'flux' or extreme change and contributed to the premature closure of interventions that prove to be difficult to implement.

Qualitative data provided an important early insight into the adoption of new processes and systems at service level for example, one member of the 'Vanguard Delivery Board' contributed through in-depth interviews;

"We've got a cross-organisational group that comes together. So we do share all of those metrics. But a lot of them they're quite complicated. …So one of the ones that was shared with us was around… the percentage of beds where people are in them who could potentially be somewhere else. But the definition that's used wouldn't be the definition, for me getting that headline data is great, but once you start querying that data you realise that your understanding of what that means isn't actually what's being collected. … So it's that understanding of each other's organisation, and what those metrics mean, not actually making assumptions based on what you think things mean". (Vanguard Stakeholder).

Data collection and management needed to be strategically focused on consistent interventions that are able to be evaluated effectively. In this particular case the lack of capacity to identify and consistently collect population outcomes meant that Vanguard metrics did not reflect the additional benefit of the integrated service to patients and that in many cases the metrics that were being collected were not fit for purpose and failed to show how health outcomes were being achieved.

The critical challenge of building capacity to collect and collate data and use it analytically to inform commissioning decisions was central to deliver future services. Data needed to be accessible to stakeholders, paper-free at the point of care and connected to other services and systems [23]. However, many Vanguards have been slow to collect and collate anything other than service level data. Population health outcomes remain elusive, in spite of the original commitment to showing the impact that changes would have on patients, staff and the wider population.

Representing the Return on Investment

A mixed method economic evaluation aligned to the national requirements started with the broad remit of exploring the costs and health related impact of the new model of care, compared to current practice. However, as reflected above, and in common with a number of other Vanguards [24], challenges in accessing meaningful patient outcome data, a time-limited period with repeated rapid redesigns, significantly hampered the analysis.

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The true cost of the intervention is an important element of the economic analysis [26]. In many of the Vanguard programmes, the funding of the service was made up of a combination of central funding a locally provided in-kind provision and the implications are important for the evaluation. For example, the redeployment of staff to the new programme is typically very challenging to quantify, even in the short term. Other factors included; the incremental cost of the new service; the additional national funding and critically the ability of the programme management team to understand and confirm the costs. The marginal cost of funding the programme long-term, with many of the in-kind services being provided alongside activities may not be sustainable on a permanent basis.

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Improving capacity for complex programme evaluation

Taking the knowledge and experience into account, this reflection identifies four initial areas for improvement in the planning for academic evaluation that seeks to report on policy-driven transformation programmes.

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Conclusion

Complex programme evaluation was a requirement of each NHS Vanguard sites, designed relative to the local improvements that were planned with services and across health and care systems. An academic team was recruited to increase capacity, insight and report

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Complex programme evaluation of a 'New Care Model' Vanguard; a shared commitment to quality improvement in an integrated health and care context

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- **Competing Interests statement.** There are no competing interests
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Abstract: NHS Vanguards, under-pressure to perform, required better contracting and data management arrangements with evaluation teams, to ensure that integrated service outcomes could be reported effectively. This communication reflects the experience of evaluating an NHS Vanguard and suggests how academic teams can improve capacity for complex programme evaluation of rapid improvements in integrated services. This should be based on a shared commitment to data collection and management. Also, robust knowledge exchange processes can enable systems change and sustainability. The identifying features of the particular site have been withheld.

Strengths and limitations

- The identification of methodological challenges in complex programme evaluation
- Learning presented from a single Vanguard site
- Recommendations for improved outcomes and capacity for systems-level evaluation

Background

The closer integration of health care and social care has been a policy goal of successive UK governments for over 40 years, who in common with most advanced western countries face the challenge of an ageing population with a range of health and care needs. In 2014/15 NHS England created funding for 50 New Care Model "Vanguard" visions of best practice in the NHS [1]. The sites were selected on the premise that a number of areas in England would spearhead the NHS Five Year Forward View [2] and build local quality improvement leadership capacity. While the funding for the three year projects was from central

government, the inspiration for the planning and implementation of each project was based on local priorities. Stakeholders from the health economy contributed to the plans, with local decision makers and practitioners, aiming to work together to achieve system-level improvements [3]. An important objective of the programme was to design new care models that could be replicated quickly across the NHS. Local implementation [4] was based on the idea that health communities would know and understand the opportunities for health improvement and prevention [5] and make a radical step change in systems re-design [6]. In most cases the funding and accountability arrangements and separate regulatory regimes focussed on the performance of individual organisations but not the system as a whole [7].

The Vanguard planned three separate service initiatives as 'rapid improvement cycles' over 18 months (the evaluation team was not involved in the first stage). The complexity of the change was compounded by organisations collaborating without the benefit of shared governance arrangements. There was a lack of clarity and accountability in decision-making processes with different tiers of management and some detachment at Board level [8]. Organisational gatekeeping of service-delivery teams and short term contracts for practitioners made planning for operational delivery very problematic and local clinical leadership was reduced due to a significant reduction and delayed funding from NHS England. These factors contributed to slower than planned progress towards integrated services operating in primary care.

The aim of evaluation was to generate an iterative programme theory to explain the Vanguard improvement activity across a health and care system; to systematically report system change methods and cost savings. In most cases (nationally) the evaluation methods included complex, theory-led process evaluations (9, 10, 11,) based around the commissioning processes and the multidisciplinary teams. Methods also included some health economic evaluation to retrospectively assess the cost of delivery and the value of the service, measured against previous service provision. This paper discusses the retrospective learning from one evaluation process in one NHS Vanguard site.

Vanguard Evaluation

Evaluation processes were variously negotiated by each Vanguard site in line with NHS England guidance on the evaluation design; with the ultimate goal of comparing results and

finding across all sites [12]. Programme teams contracted with evaluation teams to enable the generation of quasi-scientific correlations and testing of generative causal assumptions; to establish effectiveness of intervention in a 'real-world' context. Some £60 million was allocated to the evaluations of the 50 Vanguards reporting in March 2018, by which time NHS England expected individual Vanguards to be sustainable without further national funding for transformation [13]. They were asked to resist the pressure to provide positive signs of impact, at the expense of learning [14] but the urgency of the demand for results grew as the programme progressed.

Complex programme evaluation included economic evaluation but also sought to identify a range of active ingredients and disruptive 'innovations'. Local imperatives were identified across the health and care economy, for example, re-designing community services (nursing and allied health professionals) to work closely with general practice and achieve better patient outcomes. Vanguards came under pressure to report measurable improvements through generating organisational case study of the changes in practice [15]. The co-design of the evaluation was therefore an important element of the Vanguard, to enable access to systematically collected and collated data. This involved describing and explaining the complex processes and the effects of changes within a primary care system (PACS).

Evaluation Processes

The evaluation was registered as a service evaluation with the research office of the Healthcare Trust and approved by the University Ethics Committee.

Utilisation-focused methods [16] aim to meet the demand for the "social-constructivist" approaches and reflected the needs of implementation processes in healthcare. To evaluate effectively, there is a need for a full understanding of evaluation's nature, purposes and concepts [17] and to establish a working relationship and understanding of the priorities and needs for data and knowledge within the health care provider group. To this end several qualitative data sets were collected and collated between October 2016 and November 2017 capturing the views and values of those involved in planning and delivery of the integrated community service model. The aim was to develop, test and refine a programme theory that supported implementation [18] allowing managers to identify who

the primary end users of the evaluation findings might be; what evidence they require and how this could be formed into a sustained value proposition across the system.

The requirement to implement a local evaluation was a condition of funding the Vanguard. The evaluation team were brought together because of their experience and willingness to work with a health system and collaborate in the development of evaluation objectives for the Vanguard. . Key principles of the evaluation [16, 19] included a commitment to the usefulness of evaluation evidence [16] and the development of effective, trusting relationships with the key stakeholders [19]. It can take time for service providers to shift towards collaborative working and finding equilibrium on the trust/control nexus (at individual and organisational levels [20, 21]). Similar findings have emerged from other NHSE national innovation programmes; demonstrating the time required developing effective working relationships in complex evaluation situations, (seeing NHSE Healthcare Technologies Testbed Programme [22].

In this case, the relationship between Vanguard and evaluation team did not develop as hoped. Whilst every attempt was made to access staff, patients and all available data, as is usually the case with implementation evaluation, there was limited capacity to use the findings in planning for Vanguard activity. Rapid improvement cycles were planned without use of the interim evaluation report data and without sufficient notice to coordinate evaluation findings with decision-making requirements. The evaluation team employed an 'embedded' evaluator to access and present data but the approach achieved limited success partly due to a lack of organisational capacity to generate patient outcome data and organise new working processes. There were continual requests for formal changes to contractual arrangements. Evaluation teams require knowledge- exchange with the Vanguard to enable the prioritisation of data collection. The continuous improved use of local knowledge and research evidence; enabling the analysis and reporting of service outcomes.

Difficulties with Data

Evaluation involves a shared commitment to the normalisation of data collection, visualisation and analysis, shared between partners. The Vanguard, working closely to the

specification of NHS England sought to meet data required by the national programme that demonstrated rapid, large-scale changes in process-performance indicators at a system-level, i.e. reduction in attendances at Emergency Departments. This was at the expense of data collection and analysis that could be used for operational planning. Key stakeholders were unable to agree on a set of outcome metrics that best reflected population health and fitted with the programme theories of change. The failure to discriminate between the different levels of data need for a service transformation can result in a constant 'flux' or extreme change. In this case it proved to make implementation too difficult and contributed to the premature closure of interventions.

Qualitative data provided an important early insight into the adoption of new processes and systems at service level for example, one member of the 'Vanguard Delivery Board' contributed through in-depth interviews;

"We've got a cross-organisational group that comes together. So we do share all of those metrics. But a lot of them they're quite complicated. …So one of the ones that were shared with us was around… the percentage of beds where people are in them who could potentially be somewhere else. But the definition that's used wouldn't be the definition, for me getting that headline data is great, but once you start querying that data you realise that your understanding of what that means isn't actually what's being collected. … So it's that understanding of each other's organisation, and what those metrics mean, not actually making assumptions based on what you think things mean". (Vanguard Stakeholder).

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The views expressed are those of the author(s), and not necessarily those of the NIHR or the Department of Health and Social Care.

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Complex programme evaluation of a 'New Care Model' Vanguard; a shared commitment to quality improvement in an integrated health and care context

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Title: Complex programme evaluation of a 'New Care Model' Vanguard; a shared commitment to quality improvement in an integrated health and care context

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Abstract: NHS Vanguards, under-pressure to perform, required better contracting and data management arrangements with evaluation teams, to ensure that integrated service outcomes could be reported effectively. This communication reflects the experience of evaluating an NHS Vanguard and suggests how academic teams can improve capacity for complex programme evaluation of rapid improvements in integrated services. This should be based on a shared commitment to data collection and management. Also, robust knowledge exchange processes can enable systems change and sustainability. The identifying features of the particular site have been withheld.

Strengths and limitations

- The identification of methodological challenges in complex programme evaluation
- Learning presented from a single Vanguard site
- Recommendations for improved outcomes and capacity for systems-level evaluation

Background

The closer integration of health care and social care has been a policy goal of successive UK governments for over 40 years, who in common with most advanced western countries face the challenge of an ageing population with a range of health and care needs. In 2014/15 NHS England created funding for 50 New Care Model "Vanguard" visions of best practice in the NHS [1]. The sites were selected on the premise that a number of areas in England would spearhead the NHS Five Year Forward View [2] and build local quality improvement leadership capacity. While the funding for the three year projects was from central

government, the inspiration for the planning and implementation of each project was based on local priorities. Stakeholders from the health economy contributed to the plans, with local decision makers and practitioners, aiming to work together to achieve system-level improvements [3]. An important objective of the programme was to design new care models that could be replicated quickly across the NHS. Local implementation [4] was based on the idea that health communities would know and understand the opportunities for health improvement and prevention [5] and make a radical step change in systems re-design [6]. In most cases the funding and accountability arrangements and separate regulatory regimes focussed on the performance of individual organisations but not the system as a whole [7].

The Vanguard planned three separate service initiatives as 'rapid improvement cycles' over 18 months (the evaluation team was not involved in the first stage). The complexity of the change was compounded by organisations collaborating without the benefit of shared governance arrangements. There was a lack of clarity and accountability in decision-making processes with different tiers of management and some detachment at Board level [8]. Organisational gatekeeping of service-delivery teams and short term contracts for practitioners made planning for operational delivery very problematic and local clinical leadership was reduced due to a significant reduction and delayed funding from NHS England. These factors contributed to slower than planned progress towards integrated services operating in primary care.

The aim of evaluation was to generate an iterative programme theory to explain the Vanguard improvement activity across a health and care system; to systematically report system change methods and cost savings. In most cases (nationally) the evaluation methods included complex, theory-led process evaluations (9, 10, 11,) based around the commissioning processes and the multidisciplinary teams. Methods also included some health economic evaluation to retrospectively assess the cost of delivery and the value of the service, measured against previous service provision. This paper discusses the retrospective learning from one evaluation process in one NHS Vanguard site.

Vanguard Evaluation

Evaluation processes were variously negotiated by each Vanguard site in line with NHS England guidance on the evaluation design; with the ultimate goal of comparing results and

finding across all sites [12]. Programme teams contracted with evaluation teams to enable the generation of quasi-scientific correlations and testing of generative causal assumptions; to establish effectiveness of intervention in a 'real-world' context. Some £60 million was allocated to the evaluations of the 50 Vanguards reporting in March 2018, by which time NHS England expected individual Vanguards to be sustainable without further national funding for transformation [13]. They were asked to resist the pressure to provide positive signs of impact, at the expense of learning [14] but the urgency of the demand for results grew as the programme progressed.

Complex programme evaluation included economic evaluation but also sought to identify a range of active ingredients and disruptive 'innovations'. Local imperatives were identified across the health and care economy, for example, re-designing community services (nursing and allied health professionals) to work closely with general practice and achieve better patient outcomes. Vanguards came under pressure to report measurable improvements through generating organisational case study of the changes in practice [15]. The co-design of the evaluation was therefore an important element of the Vanguard, to enable access to systematically collected and collated data. This involved describing and explaining the complex processes and the effects of changes within a primary care system (PACS).

Evaluation Processes

The evaluation was registered as a service evaluation with the research office of the Healthcare Trust and approved by the University Ethics Committee.

Utilisation-focused methods [16] aim to meet the demand for the "social-constructivist" approaches and reflected the needs of implementation processes in healthcare. To evaluate effectively, there is a need for a full understanding of evaluation's nature, purposes and concepts [17] and to establish a working relationship and understanding of the priorities and needs for data and knowledge within the health care provider group. To this end several qualitative data sets were collected and collated between October 2016 and November 2017 capturing the views and values of those involved in planning and delivery of the integrated community service model. The aim was to develop, test and refine a programme theory that supported implementation [18] allowing managers to identify who

the primary end users of the evaluation findings might be; what evidence they require and how this could be formed into a sustained value proposition across the system.

The requirement to implement a local evaluation was a condition of funding the Vanguard. The evaluation team were brought together because of their experience and willingness to work with a health system and collaborate in the development of evaluation objectives for the Vanguard. . Key principles of the evaluation [16, 19] included a commitment to the usefulness of evaluation evidence [16] and the development of effective, trusting relationships with the key stakeholders [19]. It can take time for service providers to shift towards collaborative working and finding equilibrium on the trust/control nexus (at individual and organisational levels [20, 21]). Similar findings have emerged from other NHSE national innovation programmes; demonstrating the time required developing effective working relationships in complex evaluation situations, (seeing NHSE Healthcare Technologies Testbed Programme [22].

In this case, the relationship between Vanguard and evaluation team did not develop as hoped. Whilst every attempt was made to access staff, patients and all available data, as is usually the case with implementation evaluation, there was limited capacity to use the findings in planning for Vanguard activity. Rapid improvement cycles were planned without use of the interim evaluation report data and without sufficient notice to coordinate evaluation findings with decision-making requirements. The evaluation team employed an 'embedded' evaluator to access and present data but the approach achieved limited success partly due to a lack of organisational capacity to generate patient outcome data and organise new working processes. There were continual requests for formal changes to contractual arrangements. Evaluation teams require knowledge- exchange with the Vanguard to enable the prioritisation of data collection. The continuous improved use of local knowledge and research evidence; enabling the analysis and reporting of service outcomes.

Difficulties with Data

Evaluation involves a shared commitment to the normalisation of data collection, visualisation and analysis, shared between partners. The Vanguard, working closely to the

specification of NHS England sought to meet data required by the national programme that demonstrated rapid, large-scale changes in process-performance indicators at a system-level, i.e. reduction in attendances at Emergency Departments. This was at the expense of data collection and analysis that could be used for operational planning. Key stakeholders were unable to agree on a set of outcome metrics that best reflected population health and fitted with the programme theories of change. The failure to discriminate between the different levels of data need for a service transformation can result in a constant 'flux' or extreme change. In this case it proved to make implementation too difficult and contributed to the premature closure of interventions.

Qualitative data provided an important early insight into the adoption of new processes and systems at service level for example, one member of the 'Vanguard Delivery Board' contributed through in-depth interviews;

"We've got a cross-organisational group that comes together. So we do share all of those metrics. But a lot of them they're quite complicated. …So one of the ones that were shared with us was around… the percentage of beds where people are in them who could potentially be somewhere else. But the definition that's used wouldn't be the definition, for me getting that headline data is great, but once you start querying that data you realise that your understanding of what that means isn't actually what's being collected. … So it's that understanding of each other's organisation, and what those metrics mean, not actually making assumptions based on what you think things mean". (Vanguard Stakeholder).

Data collection and management needed to be strategically focused on consistent interventions that could be evaluated effectively. In this particular case, the lack of capacity in front-line teams, to identify and consistently collect population outcomes data meant that Vanguard metrics did not reflect the additional benefit of the integrated service to patients. In many cases the metrics that were being collected were not fit for purpose and failed to show how health outcomes were being achieved.

The critical challenge of building capacity to collect and collate data and use it analytically to inform commissioning decisions, was central to deliver future services. Data needed to be

accessible to stakeholders, paper-free at the point of care and connected to other services and systems [23]. However, many Vanguards have been slow to collect and collate anything other than service level data. Population health outcomes remain elusive, in spite of the original commitment, to showing the impact that changes would have on patients, staff and the wider population.

Representing the Return on Investment

A mixed method economic evaluation aligned to the national requirements started with the broad remit of exploring the costs and health related impact of the new model of care, compared to current practice. However, in common with a number of other Vanguards [24], challenges in accessing meaningful patient outcome data within and a time-limited period with repeated rapid redesigns significantly hampered the analysis.

The economic evaluation considered the cost of the Vanguard programme alongside a time series analysis of secondary care (hospital) activity (e.g. emergency bed days, length of stay and admissions). It demonstrated that there was no observed impact, negative or positive, that could be directly associated with the service re-design over the time period analysed. The insufficient evidence of a return on investment was the only element of the evaluation that the programme team used to inform the on-going commissioning decisions, unfortunately leading to a dis-continuation of the integrated team. The inability to offset the cost of service provision and no evidence of improvement on patient health meant that the Vanguard was unable to continue beyond the programme period.

The economic evaluation, sought a comparator site using a synthetic comparator [25] a sample area, assessing secondary care costs in an attempt to show short term benefit. The intervention was defined as integrated community services and the causality of the effect of the integrated team needed to be disentangled from other common causes of variation such as winter flu or work-force changes. A good understanding of the systems influences are critical to programme evaluations [26] but this requires considerable embedded knowledge and understanding to be shared across the programme and evaluation teams.

The true cost of the intervention is an important element of the economic analysis [26]. In many of the Vanguard programmes, the funding of the service was made up of a combination of central funding a locally provided in-kind provision and the implications are important for the evaluation. For example, the redeployment of staff to the new programme is typically very challenging to quantify, even in the short term. Other factors included; the incremental cost of the new service; the additional national funding and critically the ability of the programme management team to understand and confirm the costs. The marginal cost of funding the programme long-term, with many of the in-kind services being provided alongside activities may not be sustainable on a permanent basis.

Workforce Challenges

Short term workforce changes i.e. through secondments and short term appointments go to the heart of the sustainability of what the programme is going to achieve. The National Audit Office have recently recognised that there were 'missed opportunities' [13] for the required depth and scale of transformation across the system, particularly in relation to the delivery that achieved economic sustainability and full value for money of the programme. Service outcomes related to existing staff in short term posts and variation in hospital activity was unlikely to be a good indicator of the benefits achieved through integrated team practice and the long term patient health and wellbeing.

While ideally any evaluation would incorporate a life-time consideration of the health of the patient, and other relevant social outcomes [27] such time-intensive research was clearly not possible in the Vanguard. One insight was fed back to reflect the way that individual practitioners approached team practices;

"….. I think it's quite difficult for individual organisations to let go of control. So whilst I think at the moment we've got people working in an integrated office, so out of one office, I wouldn't yet say we've managed to get an integrated team. ……..we're on that journey, and we are working towards becoming one team. But culturally and how everybody works, and how all the different organisations work, and what that looks like is quite difficult. (Vanguard Stakeholder)

Improving capacity for complex programme evaluation

Taking the knowledge and experience into account, this reflection identifies four initial areas for improvement in the planning for academic evaluation. The purpose is to improve reporting on policy-driven transformation programmes.

Increase access to integrated services: Evaluation teams require specific access to managers and the interdisciplinary workforce [28]. Consensus on General Practitioners' views and perceptions of the systems change are required to identify the variation in choices and priorities for integrated working [20]. Interdisciplinary working remains under-developed in primary care and evaluation could highlight good practice, for example enabling the most effective local improvements, based on those designed to provide rapid access [29]. Clinical leadership is often under considerable operational pressure to demonstrate success of the integration of professional practices [30]. So, a commitment to allowing patient-facing teams to share experience and express priorities for integration is a core evaluation requirement. The use of qualitative data to represent 'telling cases' is critical to show how systems leadership has led to greater integration.

Develop contractual arrangements: Evaluations designed to inform innovations in service delivery, need pre-established stages and clear reporting requirements. Whilst evaluations can be rapid-cycle and feedback can be informal in nature, there is a requirement to maintain a timetable of activities within a relatively stable service delivery model, to allow for setting up data collection processes and to analyse and interpret these data. The evaluation team is often able to become an additional resource through the sharing of research evidence and comparative experience from other health context. This model of evaluation practice needs to be introduced and contracted carefully, in such a way as to make clear the purpose and value of the partnership, of site visits and observations [31]. Evaluation planning should include opportunities for organisational development through engaging community and professional stakeholders and formative and summative evaluation [23].

Economic evaluation: Evaluation teams require programme leaders to co-design the model of health economics recognising not only the return on investment but the value of the learning and leadership within the system. The increasing value on social justice in economic terms is a significant test of the local commitment to the cost and return on sustained organisational learning [32]. Shared understandings of the metrics by which population health improvements are being assessed are now critical. They serve to challenge assumptions that secondary care metrics, i.e. emergency admission data, is satisfactory. The design of the economic evaluation needs to reflect the original values associated with the shared quality improvement goal which in this case had three facets; improving care, managing demand and reducing hospital admissions. The attempt to identify value and attribute costs at systems level is required before integrated care services can be sustainably commissioned [29].

Building capacity for evidence-based change: Complex evaluation seeks to deliver the support for decision-making for services in 'practice-based' commissioning [33] and NHS England supported Vanguards to investigate their concerns about the level of unplanned admissions. A range of interventions could be effective in reducing these [34], with a view to re-designing care and promoting health improvement. Routinely collected metrics may be used to assess the quality and effectiveness of care provision and the choice of metric needs to be a careful consideration in relation to quality and cost impact. Vanguard evaluation enables an evidence-based approach to improvement but just as health professionals need a full understanding of the conditions they have to treat, academics undertaking evaluation need as full an understanding of the process as possible [35]. The engagement with the particular health system and a commitment to share the findings with stakeholders requires time and capacity to achieve the best outcomes for selected patient populations [36].

Conclusion

Complex programme evaluation was a requirement of each NHS Vanguard sites, designed relative to the local improvements that were planned with services and across health and care systems. An academic team was recruited to increase capacity, insight and report findings of a local systems transformation. Improved evaluation processes may be needed

to showcase the value of the investment in 'new ways of working' and to sustain system outputs. Better evaluation outcomes would be achieved with a) increased access to the frontline services and the process of integration b) contractual processes that enable evaluation teams to share interim findings and engage with complex dilemmas across the system c) clarification on a range of quality outcome metrics that would inform an economic evaluation thus helping commissioning to resist the considerable pressure to view short term cost savings and d) capacity building associated with the relevant research evidence to support local planning. National evaluation is currently being undertaken to identify the sustained changes that have taken place.

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