SEARCH FOR A PRACTICAL STRATEGY TO DISSEMINATE MODELS OF ADVANCED PREVENTIVE CARE
THAT IMPROVE THE HEALTH OF CHRONICALLY ILL OLDER ADULTS


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**ABSTRACT**

Kenneth D. Coburn: Search for a Practical Strategy to Disseminate Models of Advanced
Preventive Care that Improve the Health of Chronically Ill Older Adults
(Under the direction of Sandra B. Greene)

Developing new, more effective models of preventive care for an aging, chronically ill population is

an important public health imperative.  New models that provide more frequent and ongoing monitoring

and assessments coupled with personalized preventive interventions are emerging.  Such models of

*"advanced preventive care"* are operationally demanding and costly to implement.  Even when they

improve health outcomes and reduce net health care expenditures, there are several barriers to the

spread of such models and no guarantee they will come into widespread use.  Little research has been

undertaken to assess the role that innovators of new care models might play in facilitating their

dissemination.  The theoretical framework of Greenhalgh et al. helps conceptualize the position

innovators hold relative to other entities involved in dissemination, but leaves unanswered the question of

what direct actions innovators might take to facilitate dissemination (2008).

Using an exemplar *advanced preventive care* program as a reference point, sixteen health care

executives from hospital (n=12) and physician organizations (n=4) were interviewed regarding their level

of interest in providing such a program to their service populations.  Informants were asked about three

types of collaborations with the program's developers to support their organization's use of the program;

*direct service partnership*, *franchising*, or *regional cooperative*.

The research yielded a new model of collaborative partnership, *replication consultancy,* that would

provide more robust support for the adoption and assimilation of *advanced preventive care* than typical

consulting or knowledge purveyor offerings without institutionalizing long-term dependency on program

developers.  The *direct service partnership* model that the originators of the exemplar model have relied

on for years in their local service area, also appears to be a viable option to support broader

dissemination among hospital organizations.  In some settings, potential adopters were interested in

*franchise* and *regional cooperative* models with the only model viewed favorably by the small number of physician organizations in the study being the *regional cooperative* (2 out of 4).

These results inform an implementation plan program developers can use to further the dissemination of *advanced preventive care* and highlight opportunities for health policy to help advance this important public health imperative.

To all past, present, and future explorers who, without thought of personal gain, persevere to discover and disseminate innovations that better the human condition.  And to all who educate, train, support, share the journey with, and love them.

*"System awareness and system designs are important ... but are not enough …*
*Ultimately, the secret of quality is love."  Avedis Donabedian, 2000*

## ACKNOWLEDGEMENTS

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| | |
|---|---|
| ACO | Accountable Care Organization |
| APC | Advanced Preventive Care |
| BPCI | Bundled Payment for Care Improvement |
| CCHP | Camden Coalition of Healthcare Providers |
| CEO | Chief Executive Officer |
| CFIR | Consolidated Framework for Implementation Research |
| CHHI | Canadian Heart Health Initiative |
| CHIP | Children's Health Insurance Program |
| CIN | Clinically Integrated Network |
| CIO | Chief Information Officer |
| CJR | Comprehensive Care for Joint Replacement |
| CMO | Chief Medical Officer |
| CMS | Centers for Medicare and Medicaid Services |
| COO | Chief Operating Officer |
| COOP | Regional Cooperative |
| ED | Executive Director |
| ER | Emergency Room |
| FTE | Full-time Equivalent |
| HCIA | Health Care Innovation Award |
| HF | Heart failure |
| HHA | Home Health Agency |
| HIV | Human Immunodeficiency Virus |
| HQP | Health Quality Partners, Inc. |
| IDN | Integrated Delivery Network |
| IHI | Institute for Healthcare Improvement |
| IIK | Invest in Kids |
| IPA | Independent Practice Association |

| | |
|---|---|
| IRB | Institutional Review Board |
| ISF | Interactive Systems Framework for Dissemination and Implementation |
| IT | Information Technology |
| LTC | Long Term Care |
| MACRA | Medicare Access and CHIP Reauthorization Act of 2015 |
| MCCD | Medicare Coordinated Care Demonstration |
| MCCPRN | Medicare Chronic Care Practice Research Network |
| MeSH | Medical Subject Heading |
| MMM | Methadone Medical Maintenance |
| MPR | Mathematica Policy Research, Inc. |
| MSSP | Medicare Shared Savings Program |
| MSW | Masters in Social Work |
| NCQA | National Committee for Quality Assurance |
| NFP | Nurse-Family Partnership |
| NP | Nurse Practitioner |
| NSO | Nurse-Family Partnership National Service Office |
| OT | Occupational Therapy |
| PACE | Program of All-Inclusive Care for the Elderly |
| PARIHS | Promoting Action on Research Implementation in Health Services |
| PCMH | Patient-Centered Medical Home |
| PHO | Physician Hospital Organization |
| PMPM | Per member per month |
| PT | Physical Therapy |
| RAP | Risk Avoidance Partnership |
| R&D | Research and Development |
| ROI | Return on Investment |
| SGR | Sustainable Growth Rate |
| SNF | Skilled Nursing Facility |

| | |
|---|---|
| SVP | Senior Vice President |
| TDF | Theoretical Domains Framework |
| TRIP | Translating Research Into Practice |
| U.S. | United States of America |
| VP | Vice President |
| VPCH | Vice President for Community Health |
| WHO | World Health Organization |

**CHAPTER 1 – INTRODUCTION**

**Proposed Schema for an Emerging Innovation in Preventive Care**

Non-communicable chronic disease among older adults is the greatest threat to health in the United States.  The national toll of this modern epidemic in terms of health care expenditures, disability, and reduced quality and length of life is significant and growing (Valderas et al. 2009; "Chronic Care" 2010; American Diabetes Association 2008; Jeon et al. 2009; Christine Vogeli 2008) .  The World Health Organization (WHO) reported that non-communicable conditions "… are the leading global causes of death …" ("WHO | Global Status Report on Noncommunicable Diseases 2010" 2016), making scalable interventions to address these conditions a global health priority.  In the current American health system chronically ill patients often receive uncoordinated, costly care of inconsistent quality (Zingmond et al. 2007; Wenger et al. 2003).  A systematic review of the quality of care elderly patients receive across different settings of care demonstrate many areas needing improvement (Askari et al. 2011).  The successful design and implementation of care management processes to better address the needs of those with chronic diseases has been limited (Casalino L et al. 2003).  The need to move from a reactive health system geared to provide costly acute care services to one designed to better avoid complications of chronic disease and preserve health, has spurred recent delivery and payment demonstrations and pilots in the U.S. such as Patient-Centered Medical Homes (PCMHs) and Accountable Care Organizations (ACOs).

The limitations of the current United States systems of social services, public health, and health care delivery to address this epidemic highlights the need for better models.  Against a backdrop of many high quality evaluations showing little or no effect of various care management, care coordination, or disease management models, a few innovative health care models have recently been demonstrated to be effective in improving the health outcomes of chronically ill adults (Hirth, Baskins, and Dever-Bumba 2009; Peikes et al. 2009; Peikes et al. 2008a; Boult et al. 2009; Schore et al. 2011a; Hong, Siegel, and

Ferris 2014; Coburn et al. 2012). These models and others like them may constitute a new, emerging category of health care service, which could be described as models of *advanced preventive care*. To date, a useful, standardized, and widely accepted schema for classifying these kinds of programs or the large number of those variously described as care management, disease management, care coordination, complex care management, public health nursing, etc., does not exist. Creating a framework that can differentiate programs in terms of their application of design and system principles as well as staffing roles, and implementation specifications may help better identify characteristics that distinguish more effective from less effective models and help health care and public health leaders better understand what is required for adoption and implementation to achieve reproducible results.

    Absent a generally accepted schema, for the purpose of understanding the approach taken in this study, a

*Table 1 - Proposed criteria for a model of Advanced Preventive Care.*

**Advanced Preventive Care (APC):**
Definition and criteria proposed by K.D. Coburn, MD, MPH

    A comprehensive set of "best practice" preventive interventions, encompassing primary, secondary, tertiary, and quaternary prevention activities that are …

1) Delivered in accordance with the following specifications;
   a) Coordination and collaboration within the APC delivery team, and with health care providers (especially primary care) and community services
   b) Continuously over time (longitudinal) and across care settings
   c) Using team roles that are defined and for which needed training is provided
   d) Process and performance monitoring systems capable of supporting high reliability and measuring variation in key processes
   e) Personalized by understanding and honoring the changing needs and preferences of participants

2) Chosen to address key health determinants of a defined target population;
   a) Using the best available evidence to identify health determinants of a target population and selecting corresponding 'best in class' interventions to address those determinants

3) Continuously improved by;
   a) Refining / rebalancing the preventive interventions included
   b) Improving effectiveness, participant experience, efficiency, and reliability of the delivery system Has strong evidence of effectiveness in preventing complications of chronic disease through rigorous and methodologically sound evaluation and testing (demonstrations, research trials, etc.)

Models meeting the above criteria, but not yet rigorously evaluated for effectiveness may be designated as "provisional" Advanced Preventive Care programs

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set of criteria to define a model of *advanced preventive care* is proposed. These criteria are the result of 15 years of work by the author and his colleagues at Health Quality Partners (HQP) to develop better models of preventive care to improve the health outcomes of vulnerable populations. Though not yet accepted as a standard schema broadly, this framework has had great practical value for HQP, and it helps characterize the attributes of the exemplar innovation used in this study which is based on the model of *advanced preventive care* developed and rigorously tested by HQP. The proposed criteria for qualifying as an *advanced preventive care* model is as follows;

> *An integrated and coordinated set of primary, secondary, tertiary, and quaternary preventive interventions, delivered continuously over time and across care settings that address existing and anticipate emerging risks, needs, and preferences of individuals belonging to a defined (target) population, using well-defined team roles that require special training, as well as process and performance monitoring systems used for day-to-day management and continuous improvement. Finally, the model must be tested in a high quality evaluation and be shown to improve health outcomes. The last element of this definition, (evidence of effectiveness), differentiates those few programs with such evidence from those without it.[1]*

The paucity of full-fledged advanced preventive care models to date, seems to reflect; 1) the newness and limited history of efforts to develop and test models designed in this way and, 2) the challenge most health care and public health entities face in combining the program elements needed to do so; a broad portfolio of evidence-based preventive interventions congruent with the needs of a defined population along with the implementation capabilities the model requires (longitudinal and continuous service across care settings, explicit team roles and training, and process and performance monitoring systems).

The scope, unfamiliarity, and complexity of tasks and resources associated with implementing a system of *advanced preventive care* make learning, adopting, and implementing such a model challenging for health care organizations. Yet if such models have the promise of improving health outcomes for large segments of vulnerable populations their widespread adoption and use will be necessary. In principle, the framework and objectives of *advanced preventive care* are congruent with and overlap those of primary medical care and public health. In this researcher's experience, however,

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[1] Models otherwise fulfilling the criteria, but not yet proven effective through high quality trials or evaluations could be referred to as a Provisional Advanced Preventive Care or Advanced Preventive Care (provisional).

neither primary care nor public health services have implemented all elements of the *advanced preventive care* model as a system of care to a defined target population on a large scale.

Current models of innovations related to practice-based primary care, such as the Patient-Centered Medical Home (PCMH), typically address a broader target population, assess a smaller subset of risk factors and implement a less intensive set of preventive services than that defined by *advanced preventive care*. The fact that "best practice" prevention for higher-risk populations often also requires periodic visits to the home (or other non-practice settings) over a prolonged time period makes such a model challenging for public health and primary care providers to fund and operate. And home visits in and of themselves do not suffice to qualify a program as a model of *advanced preventive care* and do not guarantee model effectiveness.

Even when preventive home visits are included in care management programs the precise set of interventions provided, the reliability with which they are delivered, and the impact that collaboration and coordination have on altering or enhancing other services is often unknown or unreported making results difficult to interpret and compare between programs. For example, one recent meta-analysis of various preventive home visit programs did not demonstrate effectiveness for these programs, overall (Mayo-Wilson et al. 2014). Without a more complete and specific classification schema it is impossible to know whether any of the programs in the Mayo-Wilson study met the criteria for *advanced preventive care*.

**A Specific Exemplar of "Advanced Preventive Care"**

A functioning program fitting the definition of an *advanced preventive care* program, which has been rigorously tested and proven effective in serving chronically ill older adults, will be used in this study to represent the larger class of interventions qualifying as *advanced preventive care* models. In this study health care leaders will be asked about their interest in collaborating with the innovators of the exemplar *advanced preventive care* program to enable their organization to provide this service. By describing an actual program that exists, specific questions informants have can be answered, and informant responses are expected to be more specific and have greater face validity. While the key informant responses will be particularly relevant to the specific *advanced preventive care* program described during the interview, they may also offer more general insights into the structure, terms, and conditions of collaborations

between *resources systems* (innovators that developed the program) and *user systems* (organizations that will adopt, implement, and assimilate the model). **Of prime interest is whether such collaborations could accelerate the dissemination of programs with attributes characteristic of advanced preventive care.**

The community-based nurse care management program of Health Quality Partners (HQP) is the exemplar *advanced preventive care* model used in this study. It is designed to prevent avoidable complications of chronic diseases and geriatric frailty among older adults by providing a comprehensive set of preventive services including health behavior modification, medication reconciliation and adherence counseling, assessment of adherence to evidence-based guidelines, self-management support, disease management, geriatric care management and overall care coordination. Several social determinants of health are addressed in HQP's program as part of standardized assessments and individualized plans as listed in Appendix A, Table 12. These include social, family, economic, and home and community environmental factors including personal safety, housing, food security, and access to medical care and social support services.

A fuller description of the interventions and management elements of the program can be found in tabular form in Appendix A and B, respectively. Both of these tables were previously published as Supplemental material to a study of the model's impact on mortality done by this author and colleagues at HQP (Coburn et al. 2012).

HQP's model has undergone extensive testing in a national Medicare study, the Medicare Coordinated Care Demonstration (MCCD). The HQP model has been found to significantly lower hospitalizations and health care expenditures and improve longevity in high-risk chronically ill older adults (Peikes D et al. 2009; Peikes et al. 2008b; Schore et al. 2011b; Peikes, Peterson, and Brown 2009; Coburn et al. 2012) . It fulfills the criteria of an *advanced preventive care* program and delivers a complex set of interventions using a community-based care management approach with a strong emphasis on preventing avoidable complications of aging and chronic disease. Nurse care managers with significant nursing experience are specifically trained on an array of protocols and processes in order to deliver the program. Close management and monitoring of performance by means of program-specific process measures increases the reliability and effectiveness of the service. When delivered by HQP, health

systems and physician practices have reported that the program is easy for them and their patients to access and utilize.

For over 8 years, from April 2002 through September 2010, the HQP model was delivered by a single organization (HQP) in collaboration with primary care physician practices in a four county region of eastern Pennsylvania as part of the Medicare Coordinated Care Demonstration. Beginning in October 2010, the Centers for Medicare and Medicaid Services extended HQP's demonstration project, but required a significant change in participant eligibility criteria and expansion of the program into adjacent geographic regions. This second phase of the demonstration was characterized by periodic disruptions in services due to delays in CMS reauthorizations, and required HQP to modify its population targeting strategy, data sources and processes for case-finding, program implementation strategy, and interventions. In addition, it challenged HQP to expand its use of collaborative partnerships with hospital-based health systems to support care delivery across a larger and more demographically diverse geographic region of southeastern Pennsylvania.

The collaborative partnership model used by HQP to deliver this program required health systems to help recruit, hire, and provide human resource services and benefits to employees that are leased to, trained, managed, deployed, and paid for by HQP. In this particular scenario, funding flowed from CMS to HQP to health system partners.[2] These staff (nurses) are employed by the health system, but are selected, trained, evaluated, and managed day-to-day by HQP in order to ensure the delivery of HQP's model with fidelity. In addition, health systems are also required to provide hospital discharge data reports to support case-finding and recruitment by helping HQP to identify all discharged patients that are potentially eligible for the demonstration. Finally, the health systems must assist HQP to find workspace for staff and to facilitate introductions with local primary care providers whose patients are admitted to their hospital. During the course of the entire CMS demonstration, from April 2002 through December 2014, a total of five health systems in the greater Philadelphia area participated in this form of collaborative partnership for varying periods of time. The term "*direct service partnership*" succinctly captures this model of collaboration and will be used to refer to this approach.

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[2] The same kind of arrangement also enables HQP to provide services to higher-risk Medicare Advantage members under a contract HQP has with Aetna, Inc. a large U.S. health care insurance company.

The HQP experience and insights gained from developing and implementing *direct service partnerships* with health systems in the greater Philadelphia area led to the notion that creative collaborations between innovators and adopting organizations may be an under-recognized opportunity to support the diffusion of innovations in health care delivery, especially, perhaps preventive care models implemented in the community, with which few acute care health systems have much experience. This experience also highlighted the difficulty that health systems and physician groups would face as *user systems*[3] attempting to implement a demanding *advanced preventive care* program without significant expert support.  HQP's experience suggests that the *direct service partnership* model of collaboration in which *user systems* work closely with and support the *resource system* to implement the program in their service area is practical and resilient.  It is possible that over time *user systems* sufficiently motivated to do so might accrue sufficient expertise to allow them to become less dependent on the *resource system* (HQP) for direct oversight and management of program implementation.

In addition to helping to identify key factors in *resource system–user system* collaborations that may be important in the dissemination of *advanced preventive care* programs, the actionable output of this study will be a strategic implementation plan for dissemination of the HQP program.  Action taken to pursue such a plan could provide a means to prospectively validate factors identified in the current study as important elements of collaborative models that can gain health system and physician group support and lead to effective dissemination of the HQP program.

Evaluation and Impacts of the Health Quality Partners (HQP) Program

Health Quality Partners model of community-based nurse care management has been tested at a single region in a long-term (12 ¾ year), prospective, randomized trial conducted as part of a national demonstration project designed to help identify promising new models of care coordination for chronically ill older adults (R. S. Brown et al. 2001).  During the first 8 1/2 years of the demonstration, community-dwelling older adults, aged 65 and over, were eligible to receive the program if they had heart failure,

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[3] The terms *user system* and *resource system* refer to elements of the theoretical model of dissemination offered by Greenhalgh, et al., described later in this introduction.  Note: key terms italicized throughout this dissertation include; *advanced preventive care*; elements of the theoretical model of Greenhalgh et al. (e.g., *resource system*); and the collaborative partnership models studied (e.g. *direct service partnership*).

coronary heart disease, diabetes, asthma, high blood pressure, or high cholesterol and did not have a low risk score on a pre-randomization health risk assessment (Archibald and Schore 2003).  Unlike all other sites participating in the MCCD, HQP intentionally enrolled a heterogeneous group of participants with a wide range of risk for adverse health outcomes.  That this was achieved is supported by the fact that the average monthly Part A & B Medicare expenditure for those randomized into the HQP study was $497 versus a 2003 national Medicare average or $552.

The HQP program uses nurses to provide all of its services, though it has other senior staff from other professional backgrounds (social worker, physician) providing input on program design, guidelines, quality improvement, program oversight, case reviews, and training.  There was a capitated monthly fee paid by the Centers for Medicare and Medicaid Services (CMS) to HQP to provide this service in the context of the Medicare Coordinated Care Demonstration (MCCD).[4]  This payment was not intended to replace or substitute for any other Medicare-covered benefit, which continued to be paid in the usual way through the traditional, fee for service Medicare program.

Highlights of the impact of HQP's model (compared to a randomized, usual care, control group) based on analyses undertaken by Mathematica Policy Research, Inc. (MPR) under contract to CMS and contained in the Fourth Report to Congress on the Evaluation of the Medicare Coordinated Care Demonstration (Schore et al. 2011b) included the following:

- A 25% reduction in all-cause mortality for the intervention group (p=0.02) (1,721 combined treatment and control)

- Among participants identified as at high risk, based on results of a health risk assessment completed prior to randomization, a 30% reduction in all-cause mortality was observed for the intervention group (p=0.03) (502 combined treatment and control)

- Among all randomized participants (1,721), HQP's program had modest (not statistically significant) impacts on hospitalizations -7% and net cost (including program fee) +9%

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[4] In the case of HQP's service to higher-risk Aetna Medicare Advantage members, payment to HQP is also on a monthly capitated basis, but with an additional gain-sharing opportunity if Aetna calculated that net savings exceeded a pre-defined threshold.

- Among a higher-risk subgroup[5] chosen by the program evaluators (248 combined treatment and control) the treatment group had;

  o A 39% reduction in hospitalizations (p<0.01)

  o A 37% reduction in emergency room use (p=0.05)

  o A net savings (including program fees) of -$397 per beneficiary per month equal to a 28% reduction in total Part A & B Medicare expenditures (p=0.05)

An article by the same evaluators (R. S. Brown et al. 2012), provided additional data on the impact of HQP's program in the MCCD across a wider variety of higher-risk subgroups as summarized in the table below.

*Table 2 - Impacts of HQP's model of advanced preventive care from Brown et al. 2012*

| | | Hospitalizations | | Medicare Part A & B net expenditures (including program fee) | | |
|---|---|---|---|---|---|---|
| Subgroup | n (treatment and control) | % change | p value | $ PBPM change | % change | p value |
| Heart failure | 199 | -13.8 | 0.39 | -$136 | -9.4 | 0.59 |
| HF, CAD, or COPD | 695 | -24.6 | 0.005 | -$116 | -10.4 | 0.22 |
| (HF, CAD, or COPD) AND 1+ admission in year before enrollment | 229 | -37.6 | 0.008 | -$419 | -28.5 | 0.05 |
| ([HF, CAD, or COPD] AND 1+ admission in year before enrollment)-OR-([1+ chronic condition] AND 2+ admissions in the 2 years before enrollment) | 273 | -33.1 | 0.02 | -$293 | -21.5 | 0.15 |

Since 2010, Aetna, Inc., a leading health insurance company in the U.S., has contracted with HQP to provide its model of *advanced preventive care* to Medicare Advantage members it identifies as at high risk of poor health outcomes and increasing health care costs (using its own proprietary risk algorithm) receiving primary care from participating physician practices in southeast Pennsylvania. Aetna's medical economics division has assessed the program's impact using a difference-in-differences analysis comparing trends in hospital utilization (inpatient admissions and outpatient services). In this approach, hospital utilization over time for the target intervention group is compared to hospital utilization among a

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[5] The higher-risk subgroup analyzed in this report included participants who had; heart failure, coronary artery disease, or chronic obstructive pulmonary disease and had at least one hospitalization in the year prior to enrollment.

cohort of members meeting the same eligibility criteria, but belonging to practices not participating in the program.  The analysis was conducted on an intention to treat basis and included all Aetna members identified as at high risk and referred to HQP whether they could be engaged and went on to actually enroll in the *advanced preventive care* program provided by HQP or not.  In public press releases over the past few years, Aetna reported that the program reduced hospital admissions 17-20% and lowered hospital expenditures 16-18% ("Aetna, Health Quality Partners See Lower Costs, Fewer Hospital Admission With Care Management Program For Medicare Advantage Members" 2011; "Aetna, Health Quality Partners See Fewer Admissions, Lower Costs from Care Management Program" 2013).

Not all implementations or variations of this model have been effective.  For example, in the second phase of the Medicare Coordinated Care Demonstration (from Oct 2010 thru December 2014) the program did not appear to offer any advantage compared to usual care (Peterson et al. 2015).  In this phase of the demonstration, there were marked differences in the conditions under which this implementation occurred compared to the first phase of the MCCD, including: greater dependence on hospital (as opposed to primary care) data sources for case-finding, greater severity of illness among the enrolled population (older age, greater number of chronic conditions, and more baseline hospitalizations, nursing facility usage and higher costs), a shorter intervention and follow-up period, a more limited scope of preventive care services (almost no group programs), and greater disruption and discontinuity of services due to administrative factors related to CMS authorization cycles.  The authors of the final report felt that all of these differences could be controlled for statistically on a retrospective basis and concluded that the similar outcomes of the usual care and intervention groups was most likely due to significant improvements in the care received by the usual care control group compared with the first phase (8 years) of the demonstration.  HQP believes that a more cautious interpretation of these findings is appropriate given the multiple factors operating during the second phase of the demonstration that may have diminished HQP's program effectiveness.  There was no direct measure of any specific services newly applied to the usual care control group during the second phase with which to support a hypothesis that these were causally related to the observed outcomes.  Finally, concurrent with the second phase of the MCCD, in the same health care marketplace, the HQP model was observed to have sustained effectiveness relative to usual care in supporting a Bundled Payment for Care Improvement initiative for

heart failure patients (2014-2015, unpublished communications from senior leaders at St Mary Medical Center, Langhorne, PA) and in support of the previously mentioned contract with Aetna.

While further research to more precisely define the magnitude of the benefit of the HQP model and the conditions under which it is most reliably effective is ongoing, the overall experience and evidence of effectiveness is sufficient to warrant testing the model in other locations and among different populations to determine if initial program results can be replicated in these settings. Doing so will require dissemination of the program; the relative success or failure of which may dictate the future utility of this model and others like it.

To help ensure reliable and effective delivery of its program, HQP has adopted a theoretical framework of "core implementation components" to specify, at a high level, the general organizational requirements for implementation (Fixsen et al. 2009). This theoretical model closely matches the approach that developers of the HQP program had independently developed and used since the program's inception. Use of this framework represents the highest level of a broad and deep set of specifications necessary to implement HQP's model. The core components of implementation include; staff recruitment and selection, pre-service training, consultation (mentoring) and coaching, staff performance evaluation, decision support data systems, facilitative administrative supports, and system interventions.

*Core Implementation Components* – Essential framework to be required of adopting organizations interested in implementing the HQP model of community-based nurse care management:

*Figure 1- Core Implementation Components - Taken from (Fixsen et al. 2009, 534)*
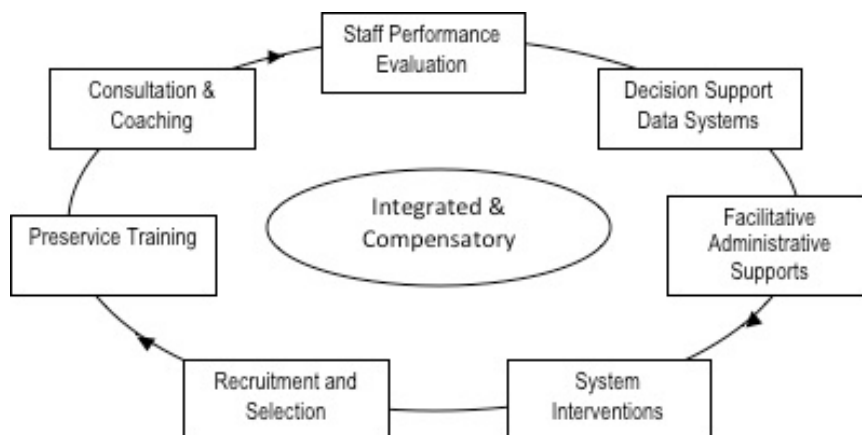
In order to ensure consistent effectiveness of *advanced preventive care* models, organizations must be willing and able to implement these programs with a high degree of adherence to well-defined process and operating specifications.  Evidence to support this comes from a comparison of performance between programs (Peikes et al. 2008b; Schore et al. 2011b).  Allowing *user systems* to freely make changes they prefer for local adaptation and reinvention may well foster broader program adoption, but in the case of *advanced preventive care* models, may also risk diminishing program effectiveness.  This highlights the importance of finding ways to reduce the burden of adoption and implementation while supporting organizations to implement the program with high fidelity.  The research undertaken in this study to explore such collaborative options will be guided by the theoretical model of innovation spread in health care organizations recently put forth by (Greenhalgh et al. 2008) and described later in this chapter.

**Efforts to Spread HQP's Model of Advanced Preventive Care**

Before this study was conducted, the primary approach by which HQP spread its model of *advanced preventive care* across southeast Pennsylvania (the only geographic region in which the program had been tried) had been by employing a *direct service partnership* with health systems in the region.  Key elements of the support provided by partnering health systems in this approach, which correspond to interview questions 3 b,c, and d, respectively, include; 1) introduction of HQP leadership to primary care providers for HQP to describe the program to PCPs and enlist their participation, 2) Human Resource (HR) support including the employment of staff (primarily nurse care managers) 'leased back' to HQP which trains and manages these staff to implement the care model, and 3) sharing of patient data for case finding and care management.  Through its separate funding sources (CMS, Medicare Advantage health plan) HQP is able to repay the sponsoring health systems the salaries and benefits of leased staff.  This arrangement has allowed HQP, as a small non-profit, to continue to focus on its core mission of health care model R&D while supporting regional dissemination of its care model and strengthening collaborative relationships with area health systems. This is the approach that HQP has successfully employed to date in southeast Pennsylvania from 2002 to present.  By including questions about the specific capability and willingness of study participants to utilize the *direct service partnership* model, this

study will help determine whether such an approach might be feasible beyond southeastern

Pennsylvania.


**Knowledge Gap – Possibilities for Direct Innovator-User Linkage**

Most research on the spread of innovations in health care has focused on the spread of new

technologies or processes used by individual health care providers or small groups of providers (e.g.,

tightly defined teams or work units within an organization) by means of diffusion.[6]  That research has

focused largely on; a) characteristics of innovations that make them more amenable to diffusion, b)

characteristics of adopting organizations that enable them to adopt and implement innovations, and c) in

the case of intentional efforts to spread innovation (dissemination[7]), the role of *knowledge purveyors* and

*change agents* to facilitate organizational adoption and implementation.  Little research has been

undertaken to understand how the interface or linkage between the organization or unit that originally

developed the innovation (the *resource system*) and the organization that puts the innovation to use (the

*user system*) might affect the rate of adoption and use of an innovation.  The authors of a systematic

literature review on this subject commissioned by the United Kingdom's National Health Service noted;

> *"We found virtually no empirical studies focusing on the input of the resource system in*
> *innovation implementation, and none at all from the health services literature."*
> (Greenhalgh et al. 2008, 190)


This is an especially important question with regard to *advanced preventive care*, which will likely require

*resource systems* to make a significant contribution to effective implementation.  To help fill this gap in the

existing knowledge base, this study is designed to assess potential strategies to enhance the

dissemination of *advanced preventive care* models through **collaborative partnerships** between the

*resource system* (designer and primary producer of the innovation) and *user system* (health care

organizations wishing to help make the innovation available to populations they serve).  In this context,

organizations *(user systems)* with which the *resource system* can collaborate could play the role of *user

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[6] Diffusion is has been defined as the passive spread of a new innovation through informal channels and
is largely a social process (Rogers 2003; Lomas 1993)(Lomas 1993).

[7] Dissemination has been defined as the spread of an innovation promoted by an active, planned, and
intentional effort to facilitate wider adoption (Lomas 1993).

*system* in a number of creative ways.  The *user system* could, for example, play the classical role whereby the organization takes the primary responsibility for adopting and implementing the innovation with or without some outside help, or it could play more of a supporting and enabling role by which it helps the *resource system* expand its implementation capabilities, acting more as a supporting partner or as a franchisee. An example would be an organization that is a *user system* committing facility space, data, human resources, funding or other resources to enable the *resource system* to implement the model on its behalf to the *user system's* service population.  It might also be possible to have *user systems* simultaneously play the adopter/implementer and sponsorship roles to varying degrees.  In this regard, it is hypothesized that making advances in creating and utilizing new approaches to health care delivery will require as much innovation with regard to inter-organizational collaboration as in pioneering new programs or interventions.  The aim is to evaluate the potential such collaborative relationships have in promoting the successful spread of this emerging class of innovations to improve the health outcomes of chronically ill older adults.


**The Conceptual Model for this Research**

Application of a Theoretical Framework to Guide the Research

Greenhalgh, et al. (2008) offer a theoretical model for the diffusion and dissemination of innovations in health service organizations based on an extensive recent systematic literature review commissioned by the UK Department of Health via the National Health Service (NHS) Service Delivery and Organisation (SDO) Programme undertaken between October 2002 and December 2003.  Two schematics of the model are shown below – a simplified and a more detailed depiction, both taken from Greenhalgh, et al. (2008).

Highlighted in blue is "Dissemination (planned spread)" the ultimate purpose for which the current study is undertaken.  Note the overlap of *knowledge purveyors* and *change agency* roles with regard to the process of dissemination.  Significant research exists that helps define the potential opportunities and limitations of those two roles in fostering dissemination.   By contrast, the focus of this research will be to explore the opportunities and limitations with regard to how the linkage between a *resource system* and *user system* can promote widespread use of *advanced preventive care* models.

*Figure 3 - A complete and detailed schematic of a theoretical model for the dissemination and diffusion of innovations in health care organizations. Taken from Greenhalgh, T et al. "Diffusion of Innovations in Health Care Organisations: A Systematic Literature Review", (2008, 201)*
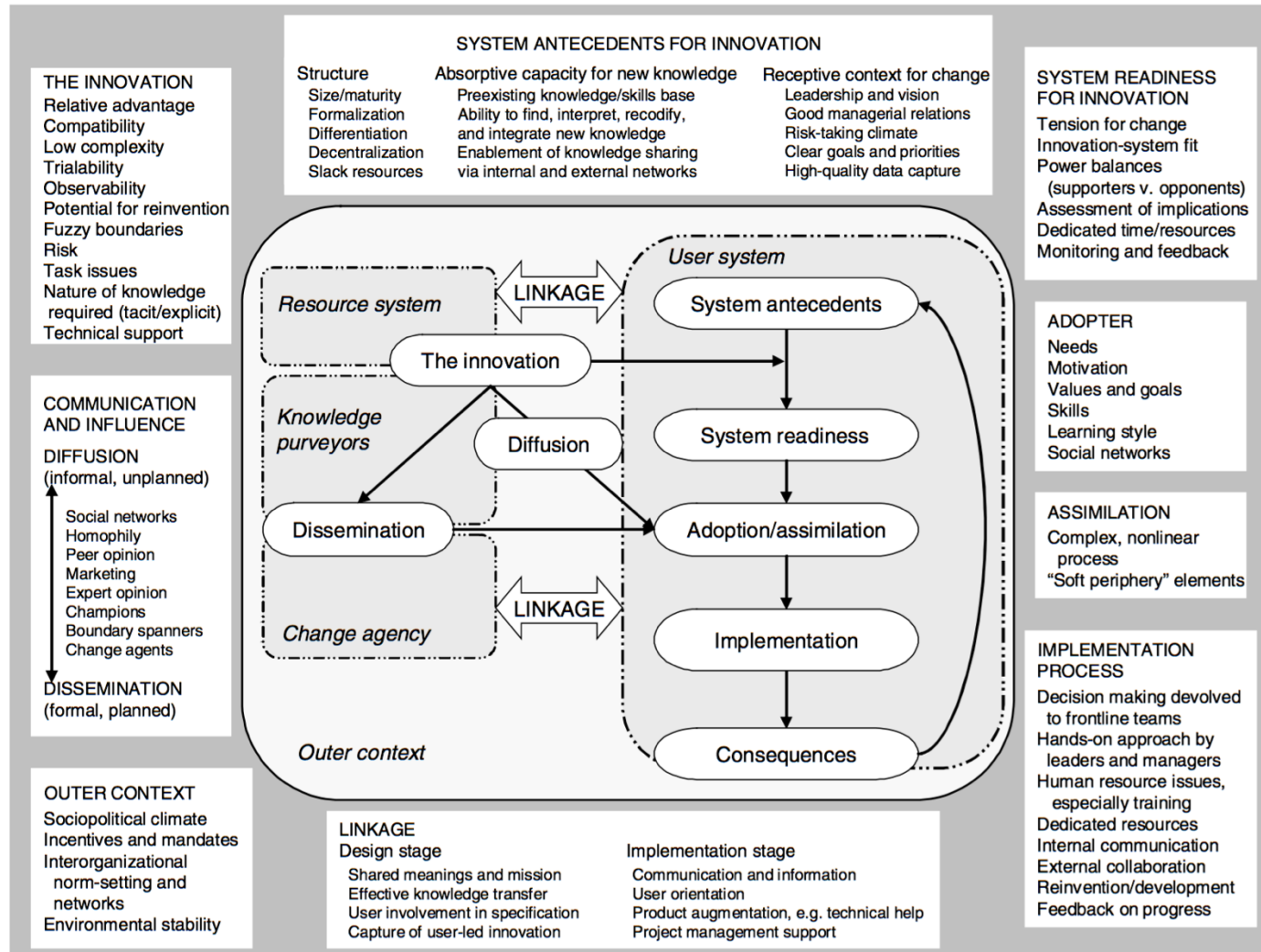
*Table 3 - Definition of terms associated with the conceptual model of Greenhalgh, et al. and as applied in this study. [Minor edits and spelling changes applied to verbatim terms selected from the glossary of Greenhalgh et al. (2008, 293–295). With addition of 'knowledge purveyor' definition from page 194).]*

| Term | Definition |
|---|---|
| *Adoption of innovations* (organizational) | An organization's means to adapt to the environment, or to pre-empt a change in the environment, in order to increase or sustain its effectiveness or competitiveness. |
| *Assimilation of innovations* | Another term for the adoption of innovations by organizations, often used in the literature relating to service sector innovations.  Assimilation is the preferred term for adoption in organizations, since it emphasizes the long and complex processes involved, with multiple decisions made by multiple agents. |
| *Change agency* | An organization or other unit that promotes and supports adoption and implementation of innovations. |
| *Diffusion* | The process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers 2003). |
| *Dissemination* | Actively spreading a message to defined target groups (Mowatt et al. 1998). |
| *Implementation* | Dissemination plus action to actively encourage the adoption recommendations contained in a message (Mowatt et al. 1998) |
| *Inner context* (user system) | …the intra-organizational determinants of innovation, including structural determinants (size, maturity, functional differentiation and so on …), leadership and locus of decision-making …, receptive context for change … and absorptive capacity for new knowledge ... |
| *Innovation* (relating to health service delivery and organization) | A set of behaviors, routines, and ways of working, along with any associated administrative technologies and system, which are (a) perceived as new by a proportion of key stakeholders; (b) linked to the provision or support of health care; (c) discontinuous with previous practices; (d) directed at improving health outcomes, administrative efficiency, cost-effectiveness, or the user experience; (e) implemented by means of planned and coordinated action by individuals, teams or organizations.  Such innovations may or may not be associated with a new health technology. |
| *Knowledge purveyors* (page 194) | Media and public relations; conference organizers; publishers and distributors of books, journals, and reports; guideline distributors, educational organizations, who package and present the results of research to the services sector. |
| *Outer context* | … extra-organizational determinants of innovativeness, including the extent and quality of informal inter-organizational networks …; the nature and success of planned strategies to promote inter-organizational collaboration …; the prevailing political, economic, sociological and technological environment (and whether it is static or changing; … and the nature and timing of particular policymaking streams and other political initiatives … |
| *Resource system* | An organization (or other unit – e.g. a research institution) that develops innovations. |
| *User system* | An organization (or other unit of adoption) that considers the innovation for adoption. |

Previous research has convincingly shown that several key attributes of innovations[8] are associated

with their rate of spread.  This is not the focus of the current study.  Based on HQP's experience in the

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[8] Relative advantage, compatibility, complexity, trialability, and observability (Rogers 2003).

MCCD[9] and the framework that HQP itself uses for implementing its model (core implementation components) the current working assumption is that, for program effectiveness to be preserved, dissemination of the model will require a high degree of fidelity to the original program design.  In other words, for all but the most minor operational adaptations, the specifications for implementing the innovation (in this case the HQP model) are not to be significantly "reinvented" at each implementation location.  Combined with the fact that so much research has already been undertaken on this general topic, no effort will be made in the current study to seek correlations between attributes of HQP's program and its ease of dissemination.

Studies also indicate that the inner milieu of an organization is a powerful determinant of the organization's ability to adopt and implement innovations.  In particular, system antecedents and system readiness, defined along several dimensions, have been shown to correlate with an organization's adoption and implementation of innovations. (for an overview of this extensive literature see Chap. 7, pp 134-156 of Greenlagh, et al).  Assessing these would help identify organizations that are more likely to adopt the HQP model and therefore be more fruitful targets of dissemination efforts.  Given the wealth of existing research and the limitations of time and access to internal organizational information, these attributes will not be specifically probed in the key informant interviews undertaken for this study.

The extent to which, if at all, partnerships or collaborations between *resource systems* and *user systems* can impact the adoption and use of innovations by health care organizations is not well researched, is an area that Greenhalgh, et al. believed warranted further study, and is the focus of the current research.

> *"**The outer context.**  Research at the interorganizational level might fruitfully explore the process of informal interorganisational networking and more formal interorganisational collaboration, with an emphasis on the role of the change agency (and how this might be enhanced).  An explicit study of the process and effectiveness of interorganisational knowledge transfer activities through boundary spanners (such as the appointment, training, and support of knowledge workers) might provide generalisable lessons for the organisations seeking to develop their capacity in this area."  (pgs. 17-18)*
>
> *"Overall, and in contrast to the findings from the commercial sector, there is almost no research aimed specifically at developing the role of the resource system or change*

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[9] Fidelity to the principles and key elements of the original HQP program is presumed essential for reproducible effectiveness given the lack of effectiveness of several 'similar' programs tested within the MCCD and the diminished impact of the HQP program when the model was changed / disrupted by external requirements (CMS).

*agency. Perhaps this is partly because service delivery innovations are not a 'product'*
*produced in a s factory or laboratory, but it may also be because there is less*
*commercial incentive for the resource system to evaluate and enhance their own role."*
*(pg. 191)*

Overarching Research Question

The immediate objective of this research is to find a mechanism for a resource system (HQP) to

support the replication of advanced preventive care by a relatively small number of other organizations at

different locations in order to create the confidence and momentum needed to gather the resources

required for broader program dissemination. The longer term goal is broad dissemination - the active,

intentional spread - of HQP's evolving model of advanced preventive care. The specific research

questions pursued in this study are designed to support this stepwise approach. The path laid out in the

implementation plan will provide more opportunities to continue to innovate both the advanced preventive

care model and the mechanisms for its dissemination through applied R&D as the work unfolds. This

research represents an important starting point. Others interested in the framework of advanced

preventive care and working toward similar goals may find this approach and the information gained from

this research useful in pursuing replication and dissemination.

**What kinds of collaborative partnerships would health systems, physician groups, and health
system-physician alliances (*user systems*) be willing to engage in with a *resource system* to adopt
and implement *advanced preventive care*?** More generally, what kind of collaborative support could

*resource systems* offer *user systems* to help implement *advanced preventive care* and vice versa?

Specifically, this study will investigate what role health care organizations perceive a *resource*

*system* can play to help accelerate dissemination, with the following realistic constraints assumed;

1. there is limited opportunity for local adaptation (modification) of the innovation

2. adopting organizations will not have the necessary internal capabilities to implement

   advanced preventive care without significant support and assistance

Under these constraints, the working hypothesis is that organizations would be more willing and

better able to adopt or make use of an innovation if they had well-designed, high value support services

or collaboration partners to directly implement the innovation on their behalf, or significantly guide and

assist them in doing so themselves. Some organizations may be more likely to adopt an innovation if

they have an opportunity to participate in an organizational partnership that could significantly reduce the burden of implementation - e.g., provide collaborative (shared or fully outsourced) operational management, staff training and evaluation, data management, performance analysis, or some combination of these.

<u>Specific Research Questions</u>

1. What is the willingness and ability of health system, physician group, and health system-physician alliance leaders to collaborate with program innovators to provide an exemplar model of *advanced preventive care* to their patient populations?

2. What objections, barriers, or difficulties do health system, physician group, and health system-physician alliance leaders associate with such collaboration?

3. Are there specific structures of collaborative partnerships that health system, physician group, and health system-physician alliance leaders are more willing to accept?

   a. *Direct Service Partnership*
   b. *Franchise Model*
   c. *Regional Cooperative*

4. To what extent do the pattern of responses of health systems, physician groups, and health system-physician alliance leaders differ?  In what ways and why?

*Figure 4 - Framework for addressing study research questions and their relationship to the theoretical model of Greenhalgh et al. 2008*



**PRIMARY RESEARCH OBJECTIVE**

**Can a *resource system* enhance dissemination**

… through collaboration with the user system to share resources and accountability for implementation

**Potential Advantage:**
Dissemination could be less reliant on the availability or quality of Knowledge purveyors and Change agents. The approach also requires relatively less internal change capability of the user system.

**Potential Disadvantage:**
Dissemination would be constrained by the capacity of the resource system to support multiple user system linkages, until some of those user systems become more able to assume greater direct responsibility for implementation with fidelity.

Explore user system acceptance of a range of options for establishing and managing this linkage. Is there an 'evolutionary' path to support the progressive independence of implementation if user system capability grows? Fallback position if user system capability diminishes?

Resource system — Linkage — Inner context (user system) — System antecedants — The innovation — System readiness — Knowledge purveyors — Diffusion (internal spread) — **Dissemination** (planned spread) — Adoption/assimilation — Linkage — Change agency — Implementation within the system — Outer context — Consequences

**How this Research Can Help and Why it's Important**

Whether the specific exemplar model of *advanced preventive care* used in this study will ultimately prove to be a major innovation to improve the health of chronically ill older adults or not is less important than is the strong likelihood that <u>care models significantly different than ones commonly used today that are more robust and more demanding to implement will be needed</u> to effectively combat this growing public health challenge.  As one example, none of the four models of complex chronic care with the strongest evidence of effectiveness in a recent systematic review have yet spread broadly in the U.S. (Hong, Siegel, and Ferris 2014).  This suggests that these models may share attributes that make them difficult to diffuse; such as an intensive commitment of resources, new training methods, unfamiliar processes or team models, etc.  Whether new models of collaborative partnerships between innovators (*resource systems*) and adopting organizations (*user systems*) will prove to be helpful in improving the dissemination of such models remains to be seen, but at least a framework and rationale for considering such efforts can be informed by the current study.

If these new models are to spread, it will likely require intentional efforts to disseminate them.  While there will be important roles for health care policy and financing in helping do so, the possibility that the innovators of such models might play an important role as well has, up till now, gone largely unexplored.  It may be that to be successful in disseminating these models, <u>all possible supports will be needed</u>; policy, financing, and new (more effective) roles for innovators, knowledge purveyors, and change agents.

It also seems likely that there may be an increasingly important role for organizations like HQP that has as its dedicated mission undertaking the applied R&D required to design and test new care innovations even when doing so provides no immediate commercial, strategic, or political gain.  If so, how are such organizations to be sustainable?  It might be that if they diversified in ways that supported collaborative partnerships that enable dissemination this could help fulfill their missions and provide revenues to do so.

The results of this study will inform an implementation plan for HQP to prioritize the development of collaborative partnership models that are feasible and likely to be accepted among health care organizations interested in adopting a model of *advanced preventive care*.  In order to sustain its

commitment to its organizational mission to design, test, and spread innovations in *advanced preventive care*, HQP must be successful at both innovating and rigorously studying such models as well as partnering with others to spread their use and to generate revenues to support operations. In effect, if executed as intended, this strategic (implementation) plan will provide a test case for the practical utility of the findings of this study, at least for a single organization.

On a larger scale, it is possible that other organizations involved in health care or public health innovation might find these results useful and apply them in a similar manner to inform their strategic planning. To the extent this occurs, it could provide a more robust validation (or refutation) of the generalizable utility of this approach to supporting the work of innovators in the field of preventive health.

**CHAPTER 2 – REVIEW OF THE LITERATURE**

From (Greenhalgh et al. 2008) page 190

> *"We found virtually no empirical studies focusing on approaches to enhance the input of the resource system in innovation implementation, and none at all from the health services literature. We found two relevant studies: one from the education sector and one from health care, both of which we rated as high quality, and which we feel raise interesting methodological issues."*

The quote above summarizes the paucity of published research literature on the role a *resource system* might play in supporting the implementation and dissemination of innovations circa 2008. Four main strategies were used to search for research articles relevant to the current study:

a) Review the two references cited in the quote above by Greenhalgh

b) Review articles citing each of the two references

c) Use Google Scholar to review all works citing Greenhalgh et al. 2008

d) Search PubMed and Google Scholar databases[10] for works published from 2005-15

e) Selected information related to the Nurse Family Partnership (NFP) model of care[11]

References found through these four mechanisms were reviewed for relevance to the main research question, which in the broadest possible sense, would include any description of *resource system - user system* interactions or collaborations in the context of the dissemination of innovations. Unless, otherwise stated, all searches sought works published through 2015. Because this study addresses innovations in

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[10] The overall evidence from recent reports suggests that while PubMed and Google Scholar are each powerful literature search databases, using both in combination, is a robust and efficient approach to conduct a systematic review; especially for health-related topics with a limited number of published articles (Bramer, Giustini, and Kramer 2016; Giustini and Boulos 2013; Gehanno, Rollin, and Darmoni 2013; Shariff et al. 2013; Bramer et al. 2013; Haddaway et al. 2015).

[11] NFP is an innovation in care with strong evidence of effectiveness that has been disseminated with the support of its originators. It is therefore a *resource system*. Reports of dissemination efforts that describe the *resource system – user system* relationship will be sought and reviewed.

health care delivery (involving human to human interactions), exclusion criteria include innovations of a purely technological or information system nature or those associated solely with the dissemination of clinical guidelines (absent any change in the care delivery system).

A study of eight successful diffusion initiatives occurring within the Global Diffusion of Healthcare Innovation study, provides a useful context for thinking about this literature review and exemplifies some challenges.  By analyzing interviews of those involved in each of these initiatives, the authors concluded that "Purposeful and directed change management is needed to drive system transformation" (Parston et al. 2015).  **One element deemed critical to supporting such intentional change efforts was "a specific agency to promote diffusion."**  Given the information provided in the study, however, it's not clear what the exact nature of these agencies was, how they varied, how they interacted with *user systems,* or to what extent they had attributes consistent with a *resource system* as defined by Greenhalgh et al. (2008).

They were described only as having certain functions and characteristics; "The creation of a specific program or initiative to promote diffusion can help translate a vision into reality by providing the impetus, coordination, resources, and structures needed to diffuse the innovation throughout the system.  The leaders of the agency must have credibility; the capacity to mobilize change; and the necessary technical, communication, and project management skills.  In each of the eight case studies, there was a dedicated program or organization in place to help create an enabling environment and drive diffusion across the system."  More information regarding whether such agencies were most like *resource systems*, knowledge purveyors, change agents, some combination or mix of these, or an altogether different kind of organizational entity would help position this work in the context of the current study.  As is true for most of the articles identified through this literature review, they offer little or no description of the structural or operational features of the *resource system - user system* relationship.

**Logic and Perspective**

Dissemination and implementation are closely related and interdependent.  With increasing frequency, the two terms are being used together to describe an emerging field or science.  One example is a paper titled *"Developing the next generation of dissemination and implementation researchers:*

*insights from initial trainees"* (Stamatakis et al. 2013).  Even when the term "Implementation Science" is used alone, it is usually in the service of disseminating effective innovations  (Newhouse et al. 2013).  In the context of the current study, a distinction is to be made between the unqualified (more general) concept of a 'researcher' versus an 'innovator' or 'inventor'.  The latter is more consistent with the definition of a *resource system* as described in the model of Greenhalgh et al. and as applied in the current study.

The ideal *resource system* brings deep understanding of a program, operational expertise, extensive experience successfully implementing the innovation, and the insight required to balance disciplined program adaptation and rigorous fidelity.  These requirements may be more akin to Deming's "system of profound knowledge"[12], than to a narrower scope of research or technical expertise.  This field is new and our understanding of the full potential of a *resource system* remains largely unexplored and underdeveloped.  "A major new scientific challenge for prevention involves understanding the processes that facilitate or impede quality implementation of programs demonstrated to have positive effects. To date, few of these successful programs have been implemented in communities, and the scientific community is in need of new methodological approaches to understand the implementation processes. Unlike the first phase of prevention research that was based on efficacy and effectiveness trials, this new phase of implementation is still in an early stage and has no single accepted paradigm to guide the scientific work."   (C. H. Brown et al. 2012)

In addition to the model of Greenhalgh, et al., many other frameworks and models have been proposed to describe factors influencing the implementation of innovations; Rogers' Diffusion of Innovation Model (Rogers 2003), Interactive Systems Framework for Dissemination and Implementation (ISF) (Wandersman et al. 2008), Consolidated Framework for Implementation Research (CFIR) (Damschroder et al. 2009), the theoretical domains framework (TDF) (Michie 2005; Cane, O'Connor, and Michie 2012), Promoting Action on Research Implementation in Health Services (PARIHS) (Rycroft-Malone 2004),  translating research into practice (TRIP) ("Translating Research Into Practice" 2016), push\pull framework (Zmud 1984), and several others.  These varied models all seek to describe factors

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[12] Consisting of a combination of; appreciation for a system, knowledge of variation, theory of knowledge, and psychology ("The System of Profound Knowledge" 2016).

important to implementation effectiveness and by extension the dissemination of innovation.  One approach to synthesizing the available literature might have been to review key articles describing such models and hypothesize how an aspiring *resource system*, like HQP, could interact with a *user system* by applying the framework of one or more such models.  Within such a context, one could hypothesize and compare the mechanisms, benefits, risks, barriers, and facilitators arising from the use of each of the selected models.

There are several reasons why this approach was rejected.  First, it would predispose the analysis toward conceiving of the *resource system* as a substitute for knowledge purveyors, change agents, boundary spanners, business consultants, or other players commonly providing implementation support such as training, facilitation, technical assistance, and management consulting.  Second, attempting to map elements of these theoretical models, learned only by reading landmark articles describing them, to the capabilities of a *resource system,* risks articulating a "pseudo-understanding" rather than a more grounded set of insights with practical utility (Fredriksson, Ebbevi, and Savage 2015).

Finally, such an approach would diminish the possibility of discovering novel means by which *resource systems* could support the implementation of innovations that are not described in any of these models.  This seems especially relevant given HQP's experience of successfully providing a unique collaborative partnership to *user systems* for several years and having an experience-informed intuition about other types of collaborative partnerships it could offer to facilitate dissemination of *advanced preventive care*.  **Therefore, the search strategies for this literature review were designed to seek reports that describe the direct work of *resource systems* in support of *user systems* to implement and disseminate innovations.**

Two References Cited by Greenhalgh

One of the references cited by Greenhalgh et al. 2008 models the benefit a supplier might receive by "triaging" customers with regard to their innovativeness to provide more support to those most likely to adopt an interorganizational information system (Nault, Wolfe, and Dexter 1997).  Such systems when fully deployed have advantages in terms of monitoring customer needs and more reliably and efficiently fulfilling orders.  To the extent HQP's model of *advanced preventive care* includes a cloud-based

information technology platform (SPERO®) enabling the *user system* and the *resource system* (in this case HQP) to monitor and address variations in program implementation and performance, there is some overlap with the premise put forth in this paper.  A key difference, however, is that the information technology application is but one of several critical program elements required for a *user system* to fully implement HQP's model of *advanced preventive care*.  All 18 articles that cited Nault et al., identified using Google Scholar, were reviewed in full, and none, (other than two works by Greenhalgh et al.) directly addressed *resource system – user system* collaboration and its potential role in dissemination.

The other citation referenced by Greenhalgh et al., was a study of how university-based innovators describe and communicate key attributes of their innovations and how such descriptions are perceived by potential adopter organizations (government regulators, industrial scientists, and consulting engineers). This 'early stage' communication about emerging innovations undertaken by innovators is believed to influence how potential adopters learn about, form initial impressions of, and ultimately adopt innovations. The results indicated that university innovators did not always positively represent their own innovations and, that as a group, they may be able to improve the effectiveness with which they communicate key attributes of their innovations to strengthen the rate of adoption by different categories of potential users (Dearing, Meyer, and Kazmierczak 1994).

While effectively communicating key attributes of an innovation is one aspect of the work HQP is undertaking to promote the dissemination of its model of *advanced preventive care*, it is not the main focus of the current study.  Review of the 33 Google Scholar identified articles citing Dearing et al. 1994, did not yield any works directly relevant to the current study.  The closest was a work by the same lead author (Dearing et al. 2013) that proposes an overall approach for more effective dissemination of pre-exposure prophylaxis for HIV.  That paper offers a thoughtful and comprehensive schema that includes "agenda setting", "diffusion-system readiness", communication and social networking strategies, "partnering to build delivery capacity and infrastructure support", "training and technical assistance", "evaluating and sharing rapid improvement results", and "monitoring for diffusion outcomes".  Though a helpful, high-level roadmap, it does not address any specific structural or operational elements of a *resource system - user system* collaboration.

Google Scholar identified 518 articles published through 2015 that cited Greenhalgh et al. 2008. Title and abstract reviews of all these works, yielded 29 meriting full text review.  Twenty-eight articles were thoroughly reviewed (one was unobtainable) of which only two are relevant to the current study (de Korne et al. 2010; Durlak and DuPre 2008).

One report described how an outside *resource system* of aviation safety experts assisted an Eye Hospital in the Netherlands in the adoption and implementation of several aviation safety practices (Dirk F. de Korne et al. 2014; de Korne et al. 2010).  Several aspects and processes of care were addressed, with the main initiative being the adoption of a Team (Crew) Resource Management system focused on "increasing awareness of safety, its causes and characteristics, improvement of communication, leadership and reflection on one's own behavior" (Dirk F. de Korne et al. 2014).  Following implementation, the hospital observed a significant decrease in wrong-sided surgery errors and a substantial increase in the reporting of "near miss" events.  Extensive, multi-pronged, and sustained efforts were made to assimilate and routinize the new ways – not all of which "took" successfully.  In the context of the current study, this is an example of a *resource system* bringing unique expertise through an extended and multi-layered *resource system – user system* engagement, and is compelling with regard to its transformation of accepted norms of hierarchical professional relationships and communications.  It suggests that a framework of *resource system – user system* collaboration, at least under certain circumstances, can deliver profound and significant enhancements to the capabilities of a *user system*.

An extensive review entitled *Implementation Matters: A Review of Research on the Influence of Implementation on Program Outcomes and the Factors Affecting Implementation* found ample evidence among published reports that the effectiveness of implementation (as assessed by measures of fidelity, dosage, program reach, quality, and adaptation) significantly impacts program outcomes (Durlak and DuPre 2008).  The studies included in their review involved "… prevention and health promotion programs for children and adolescents related to the following topics: physical health and development, academic performance, drug use, and various social and mental health issues such as violence, bullying, and positive youth development."  By reviewing additional qualitative and quantitative studies, the authors

went on to identify 23 specific factors within five major domains that influence the effectiveness of

implementation:

a) Community level factors

b) Provider characteristics

c) Innovation characteristics

d) Factors related to organizational capacity

e) Training and technical assistance

The authors noted that this schema corresponded in many respects to the findings of other

researchers who had also reviewed this same topic "…21 of the 23 factors identified in our review were

also identified in some fashion by Greenhalgh et al. (2005), 13 were noted by Fixsen et al. (2005), and 15

were noted by Stith et al. (2006)."  Apart from training and technical assistance, this study did not mention

other roles a *resource system* might play in addressing this set of factors.

Diffusion versus Dissemination

In his classic work, *The Diffusion of Innovations*, Rogers defines diffusion as "the process in which

an innovation is communicated through certain channels over time among the members of a social

system.  It is a special type of communication, in that the messages are concerned with new ideas"

(Rogers 2003, 5).  Rogers does not distinguish between diffusion and dissemination stating that "In this

book we use the word "diffusion" to include both the planned and the spontaneous spread of new ideas"

(Rogers 2003, 6).  To many researchers, however, diffusion connotes the passive spread and adoption of

innovations, while dissemination represents uptake that occurs through intentional efforts (Lomas 1993;

Greenhalgh et al. 2008).  In practice, both diffusion and dissemination are widely used in the research

literature, often interchangeably, so both have been used in the search term algorithms applied for this

literature review.

'Resource System' and Synonyms

The term *"resource system"* used in the conceptual model of Greenhalgh et al. 2008, does not appear to have been widely adopted in the research literature. Its use, as a phrase, in search algorithms would often return works related to "human resource management systems." Efforts to identify an alternative term widely and consistently applied in the research literature for those individuals (or organizations) who originally developed an innovation did not yield a satisfactory alternative. As a result, in addition to *"resource system"*, a variety of synonyms for this term were tried in search algorithms, including; "innovator", "pioneer", "originator", "inventor", "developer", and "researcher".

<u>Search Algorithms and Results</u>

A detailed listing of all search algorithms applied and the number of articles retrieved by each is provided in Appendix C. Overall, 39 unique algorithm-database pairs were assessed with most (n=32; 82%) yielding no relevant articles. The subset of 7 algorithm-database pairs that yielded one or more relevant articles, returned a total of 28 articles based on full text review. A summary of the algorithm-database pairings that yielded relevant articles is given below;

*Table 4 - Search algorithms yielding relevant articles*

| Search terms | Database | Total returned | Title/Abstract reviews | Full article reviews | Relevant articles |
|---|---|---|---|---|---|
| allintitle: innovation + diffusion + health | Google Scholar | 35 | 35 | 9 | 1 |
| (pioneer[Title/Abstract] AND dissemination[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 10 | 10 | 2 | 2 |
| (developer[Title/Abstract] AND dissemination[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 6 | 6 | 3 | 1 |
| healthcare "resource system" -TEKS innovation | Google Scholar | 1240 | 1240 | 42 | 8 |
| ("research personnel"[MeSH Terms] OR ("research"[All Fields] AND "personnel"[All Fields]) OR "research personnel"[All Fields] OR "researcher"[All Fields]) AND ("diffusion"[MeSH Terms] OR "diffusion"[All Fields]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 949 | 949 | 37 | 13 |
| All citations to Greenhalgh (2008) | Google Scholar | 518 | 518 | 28 1NAvail | 2 |
| "nurse-family partnership"[All Fields] AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 73 | 73 | 26 | 1 (best) article was used |

**Few articles were identified that offered well developed descriptions of a *resource system* (as defined by Greenhalgh et al. 2008) supporting one or more *user systems* to implement an innovation.** It was also often hard to tell whether supporting organizations described in articles had been involved in the original design, creation, or development of an innovation. An example of this is an article that offered a construct, based on a single case, of a formal logic model for the work of "purveyors" supporting "provider organizations", the former described as "individuals or organizations that operate as outside experts representing a particular program; they support organizations, systems, and practitioners in striving to adopt and implement the program with fidelity" (Oosthuizen and Louw 2013). The theory offered, in this example, mapped specific elements of a purveyor program to the domains of; inputs, functions, proximal outcomes, intermediate outcomes, and distal outcomes. In addition to not including any evidence that the "purveyors" qualified as a full-fledged *resource system*, the construct pays little attention to factors affecting the effectiveness or durability of the collaborative relationship between purveyor and provider. By contrast, these are the primary concerns of the current study.

An article that better addresses the focus of the current study, describes how innovators that undertook the original R&D needed to develop and validate a program of Methadone Medical Maintenance (MMM) went on to support program implementation by others. After testing the MMM model and demonstrating its effectiveness (King et al. 2006), these innovators provided educational seminar presentations and consultative support to five methadone maintenance treatment clinics that agreed to participate (King et al. 2008). They discovered that being a *resource system* does not, in and of itself, eliminate the challenges that other types of players face in supporting *user systems* to implement new programs. For example, the attendance by clinic leadership at their presentations was meager for three clinics and only two clinics sought and received additional consultation. These authors noted that "Many of the factors pointed out in previous studies—the inertia of current policies and procedures, lack of adequate training in how to provide innovative methods of treatment, and demanding clinical workloads that interfere with implementing new interventions—were factors in this project … Significant effort is required to surmount these formidable hurdles, and this intervention did help to address some of these issues. However, our experience may indicate that even lengthier relationships (N1 year) may be needed to adequately address follow through in any plans to change complicated systems of care using relatively

low intensity interventions such as this" (King et al. 2008). The recognition that longer periods of collaboration are often needed to provided adequate support to *user systems* mirrors HQP's experience.

One case study of the implementation of an evidence-based fall prevention program in an aged care organization in Australia, demonstrates the application of the Greenhalgh model. All of the elements of the model were mapped to features of the implementation initiative. The *resource systems* were "two regional falls networks" [fall prevention consortia] providing "… evidence synthesized into a range of products." "These included locally developed tools such as brochures, posters, screening and assessment forms, as well as distributing nationally developed resources such as guidelines and resource kits." "Staff have developed ongoing links with the local regional network at the management level, participating in the advisory group, while clinicians made substantial use of the training opportunities offered. Thus the organization both contributed to, and utilized the services of the networks" (van Kessel 2012). Unfortunately, few details were provided as to how the *resource system - user system* relationship was structured and operationalized.

One study using ethnographic observations and process tracking provides insights into how a *resource system* (a community-based research organization) that originally designed and tested an intervention collaborated with a *user system* (a behavioral health care organization offering long-term outpatient substance abuse treatment) to help translate and expand implementation of an innovation. The Risk Avoidance Partnership (RAP), "is a health promotion intervention originally designed to train active drug users to become Peer Health Advocates" (Weeks et al. 2015). "Findings indicated that RAP core components can be met when implemented in these settings and RAP can fit with the goals, interests, and other programs of the clinic. Balancing fidelity and fit requires recognition of the mutual impacts RAP and the clinic have on each other, which generate new interactions among staff and require ongoing specification of RAP to keep abreast of clinic and community changes. **Collaboration of multiple stakeholders** *[emphasis added]* significantly benefited translation and pilot processes."

Researchers from the University of Washington Health Promotion Research Center developed a framework for dissemination in which "Researchers create new knowledge to aid dissemination of best practices. Disseminating organizations ("disseminators") use that knowledge to lead dissemination efforts. User organizations put best practices into place" (Harris et al. 2011). The argument made by the authors

for separating these functions had to do with focus and cultural fit. "Although researchers can serve as disseminators, disseminators have at least 2 advantages in disseminating best practices: 1) they can focus on dissemination, rather than on research objectives and funding, and thus focus on the support systems needed to reach the scale necessary to make a difference at a population level; and 2) they may be closer in culture and values to user organizations than are researchers and thus better able to promote best practices and adapt them to local needs." Unlike a *resource system* that delivers care using the innovation it created while providing support for implementation and scaling, in the framework of Harris et al., it is possible, perhaps likely, that the researcher-disseminator dyad will have had no direct experience or accountability for operationalizing the program being disseminated. While the dyad model may be able to support user organizations, it may be less able to provide the kind of insights, knowledge, and problem-solving that a *resource system* could by virtue of its experience developing and delivering an innovative model of care.

A thoughtful paper by researchers assessing the dissemination phase of the Canadian Heart Health Initiative (CHHI) (Masuda et al. 2009), highlights how complex it can be to ascertain the impact of varied types of implementation support. They note in providing a background to their work that "although there has been increasing support for the idea of complex interactional (i.e., two-direction or multidirection) engagement between organizations for more effective dissemination of health promotion innovations in health systems (Lee & Garvin, 2003), empirical investigations to confirm these assumptions are surprisingly sparse (Maibach, Van Duyn, & Bloodgood, 2006)." In their analysis of CHHI dissemination, the "level of interaction" between project teams (*resource systems*) and recipient organizations (*user systems*) did not correlate with "dissemination outcomes (as evaluated independently by each provincial project)."

Despite marked variation in the approach and level of interaction of project teams across provinces, most provinces deemed themselves successful in delivering the intended "dissemination objects" to the intended "target organizations." These findings were interpreted as suggesting "that effectiveness is improved when projects are responsive to contextual variables more than if they had attempted to adhere to universal good practice principles of maintaining original plans. In the context of such "natural" experiments in large-scale systems approaches to influencing health promotion efforts, it may be neither

realistic nor desirable to insist on intervention fidelity at certain scales." An alternative interpretation, not put forth by the authors, is that none of the implementation supports provided to provinces was very effective and that the self-assessment of dissemination success was generous. Under such a scenario, the same pattern of results might have been observed; "good" outcomes with a poor correlation between the dissemination approach taken and the outcomes observed.

Reflections on the Nurse Family Partnership (NFP) Program

Nurse Family Partnership (NFP) is the program individuals most often spontaneously associate with HQP's model of *advanced preventive care* (including some key informants participating in the current study). The comparison is made, not because of any similarity in name, program-specific interventions or target populations, but because of shared attributes of both programs' innovators; sustained commitment to ongoing, long-term, program development; insistence on rigorous program evaluation methods, including randomized controlled trials; use of registered nurses; and the use of stringent program standards, staff training, and implementation processes.

The NFP program was started in the 1970's by Dr. David Olds. The model is a well-designed nursing intervention providing support, education, and counseling to low-income, first-time mothers and their babies, through home visits by a registered nurse beginning early in pregnancy and continuing through the first two years of a child's life. **The creation of a *resource system* with the help of the originators of this program in order to facilitate the dissemination of the program is especially noteworthy in the context of the current study.** After multiple randomized controlled trials demonstrating favorable program outcomes, a non-profit organization, the Nurse-Family Partnership National Service Office (NSO), was created in 2003 " … to facilitate quality replication of the Nurse-Family Partnership program across the U.S. and to provide implementing agencies with ongoing support in nursing education and practice, program quality assurance, marketing, public policy, and more" ("Program History | Nurse Family Partnership - NFP" 2016). This organization's website is easily found, being the first one listed when searching Google for "nurse family partnership".

In addition to offering general information about the model, the website also provides at-risk mothers a way to search for a program in their area, lists job postings for nursing staff at sites across the nation,

and describes the array of supports the NSO provides to state and local program sponsors (including business development, nursing practice, program quality support, marketing and communications, public policy and government affairs). The model elements and the importance of fidelity for achieving reproducible outcomes is also presented. Meanwhile, Dr. Olds and his colleagues at the Prevention Research Center for Family and Child Health, University of Colorado School of Medicine, Department of Pediatrics continue to undertake a prodigious amount of research to improve the quality and effectiveness of the program.

With respect to identifying work this group has done on the question of enhancing *resource system – user system* collaborations, one article of the 73 identified in PubMed using the search algorithm "nurse-family partnership"[All Fields] AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT])" stands out in particular. In the *"Influence of Collaboration on Program Outcomes: The Colorado Nurse-Family Partnership"*, the degree to which the quality of the **collaborative relationship** between program sites and organizations supporting them and program outcomes is explored. As the authors explain, "The Colorado NFP is unique in that it devotes greater attention than other states in the use of a collaborative site-development strategy. In Colorado the adoption of the NFP is done though collaborative partnerships including county health departments, community health agencies, county human services departments, school boards, local head starts, county commissioners, and business and civic leaders. The program is then implemented by local health agencies and supported by and planned for by these collaborative partnerships. At the time of this study, 16 collaborative partnerships, ranging from citywide to multicounty collaboratives, were in place, …" (Hicks et al. 2008).

This study offers the most thorough and insightful description of how a *resource system* can support a *user system* found in this literature review;

> *"… These collaborative partnerships are facilitated by Invest in Kids (IIK), a nonprofit organization based in Denver, Colorado that partners with communities to implement evidence-based programs targeting children (prenatal to age 5), particularly those from low-income families. IIK has played a critical role in bridging the gap between the resources and commitments of the community and the requirements of implementing the NFP. IIK is most heavily involved in the formative stages of the collaborative partnership: recruiting stakeholders from key sectors, building community commitment to establish the program, and facilitating the implementation of the program by a community agency. IIK also facilitates the establishment of a community advisory board in each site that provides ongoing support for the program, including facilitating interagency collaboration between multiple sectors in areas such as funding needs, client referral, and hiring home-visitation nurses. In addition, IIK provides ongoing*

*technical assistance and support to the 16 communities, acting as a bridge between the communities and the National NFP office.*

*We have evaluated the site development and implementation strategies of IIK and these collaborative partnerships since 1999. The primary interest is in determining the relationships between features of community collaboration, particularly the quality of the process and the program outcomes reported by the Colorado NFP …" (Hicks et al. 2008).*

**The results show that the quality (authenticity) of the collaborative process between *resource system* and *user system* is statistically correlated with the attrition rate of participants (individual clients) from the program (a key program outcome measure), even after controlling for other variables like nurse attrition.** The authors surmise that the quality and authenticity of the collaboration strongly and durably impacted the morale, energy, commitment, positive expectation, and effectiveness of site staff.

"It took many years and much hard work for health care professionals and social scientists to conclude that events and experiences in infancy and early childhood had lasting effects on the child's, and then later, the adult's health and well-being. In fact, this assumption underwrites both the theoretical foundations of the NFP and the body of evidence demonstrating its success. **We are arguing analogously that the events and experiences in the infancy and early stages of the collaborative process have lasting effects on the commitment to and ultimate success of the programs that process engenders** *[emphasis added]"* (Hicks et al. 2008). This construct is completely congruent with the experience HQP has had in working with collaborative partners for the past sixteen years. It also hints at a potentially powerful, but largely unrecognized and untapped possibility within the construct of *resource system – user system* collaboration.

**Conclusions**

**There seem to be few high quality studies that explore the potential attributes, opportunities, structures and mechanisms of *resources system – user system* collaborations in support of disseminating innovations.** <u>A few of the relevant articles identified provide provocative evidence that the quality of the collaboration in such a construct may have significant and long-lasting impact on program effectiveness</u>. Though this seems logical on the face of it and corresponds to HQP's experience, if confirmed, this is an extremely powerful and potentially transformative insight. More

thorough descriptions of resource systems in published studies, including their lineage with respect to innovation design and development would be very helpful. Additional refinement of methods to measure the quality of collaboration as well as additional studies exploring this idea further through robust experimental designs would likely contribute significantly to the field.

**The successful dissemination of the Nurse-Family Partnership and the conscious decision by its originators to help support the development of a readily accessible, high quality *resource system* in the form of the NFP National Service Office deserves recognition.** It may not be coincidental that the best study describing the relationship between the quality of *resource* and *user system* collaboration and program outcomes comes from this set of researcher / innovators. Nor is it surprising that this team remains extremely active in ongoing program design modifications and quality improvement related research. Such a mindset may be an essential attribute of a successful, sustained and periodically revitalized *innovator / resource system*.

**Caution, as to the completeness or robustness of the current literature review is warranted.** The fact that the best paper in this review was not found through structured search algorithms incorporating terms associated with the major models of innovation diffusion, dissemination, or implementation or through citation threads of such publications, suggests that search algorithms structured along these lines may be flawed or that a recalibration of descriptive terms and publication assigned keywords and MeSH headings in this field may be warranted, or both.[13] This raises the question of what other studies have gone "missing". Therefore, caution, as to the completeness of the current review is warranted, though great effort was made to cast a wide net then narrow results through investigator manual review to avoid missing relevant works.

**The current study undertaken for this thesis is likely to contribute new knowledge to the field.** Notwithstanding that some references may have been overlooked, it appears that the current study addresses aspects and possibilities for *resource system – user system* collaboration in a novel way that has not been previously researched.

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[13] As reference the MeSH heading for (Hicks et al. 2008) included; Colorado; Cooperative Behavior; Humans; Nursing Evaluation Research; Nursing Staff, Hospital*; Outcomes Assessment (Health Care)/organization & administration*; Professional-family Relations*; Program Evaluation. Some of these terms would likely be useful in future reviews on this subject to ensure more complete capture of relevant studies.

**CHAPTER 3 – METHODOLOGY**

**Overall Study Strategy**

Key informant interviews were conducted with individuals in senior leadership positions (decision makers/influencers) from different types of health care organizations that might have an interest in adopting and implementing an innovation in preventive care for higher-risk chronically ill older adults. Interviews collected information about current work the informant's organization was pursuing in this area, described the exemplar innovation, and then solicited reaction to various collaborative partnership models by which the innovation developer (*resource system*) might collaborate with the subject's organization to assist it in delivering the innovation to the organization's service population. The interviews were digitally recorded with subject permission, transcribed verbatim, and analyzed to assess what models of collaboration between a *resource system* (HQP) and *user system* (the informant's organization) offered the most pragmatic opportunity to facilitate dissemination of *advanced preventive care*.

**Protections of Human Subjects**

All subjects provided verbal consent to participate in the study at the beginning of the telephone call before information was collected in the interview. All subjects were also asked for their permission for the researcher to digitally record the interview and all subjects consented. Safeguards to protect confidentiality and anonymity include data security measures and the lack of reporting any specific personal or organizational information that could lead to the identification of study participants or their organizations. As necessary, distinguishing features of the informant or the informant's organization (for example, a very unique position title) have been changed to more generic terms to protect the identity of study participants. The study was approved by the University of North Carolina Institutional Review Board (UNC IRB Study # 12-0999).

**Rationale for Selection of Potential *User System* Organizations**

The goal was to select health care organizations that could be potential champions and supporters of HQP's model of *advanced preventive care*, possessing sufficient resources, understanding, interest, incentives, and position within the larger health system to enable them to play such a role.

Organizations were sought that were likely to have attributes essential for adopting the HQP model including:

- Interest in improving the long-term health outcomes of chronically ill older adults.

- Experience working with or relating to health care delivery systems – including an ability to collaborate with primary care providers, hospitals and community service organizations.

- Experience with and appreciation for utilizing nurses as staff for service delivery.

- Direct access to health care data relevant for case-finding and program referrals.

An effort was made to identify and enlist senior executives from the following types of organizations to participate in key informant interviews:

1. Hospital organizations – This category includes general medical/surgical hospital organizations (excluding Veterans Health Administration facilities); both larger, hospital-based health systems and smaller, standalone community hospitals. Four states were chosen at random from which to select this class of informants; Michigan, Virginia, Texas, and New Mexico.

2. Physician led organizations – Independent Practice Associations (IPAs), primary care networks, medical groups, or physician practices (with 5+ primary care providers and/or National Committee for Quality Assurance (NCQA) Patient-Centered Medical Home (PCMH) certification). Four states were chosen at random from which to select this class of informants; Florida, Maryland, Mississippi, and Vermont.

3. Health system - Physician alliances (e.g., PHO – Physician Hospital Organization or other similar types of partnerships). Organizations to enlist in this category were sought from the same four states as physician led organizations.

Other organizations meeting criteria for inclusion were considered for participation in this study (for example, visiting nurse and community service organizations, and health insurers), but the final selection was based on the time available and logistics necessary to conduct interviews.   A key objective was to identify organizations that already had or were likely to seek financial agreements offering incentives for improving care to a population of "attributed" lives as defined in emerging payment models (e.g, certain value-based, Accountable Care Organization, and Bundled Payment programs).  Such organizations had shown interest in HQP's program.

The intended goal was to interview and collect useable information, perspectives, and opinions from senior executives with significant decision-making authority for adopting and contracting for new services for their organization from among randomly selected organizations within each of the three organizational categories above.  In practice this meant addressing the invitation to participate in the study to the CEO, Executive Director, Administrator, COO, or equivalent role within each organization.  These individuals, in turn, could delegate other senior executives to participate in the study.


**Conduct of the Study**

Key Informant Outreach and Recruitment

The original study design envisioned completing a roughly equal number of 4 to 6 interviews for each of the three organizational categories targeted – for a total of 12 to 18 interviews.  In practice, it was difficult to identify and obtain useful contact information for physician led organizations like IPAs and medical groups and health system-physician alliances like PHOs.  At the time of study implementation, there was no comprehensive, publicly available information source to search for IPAs, medical groups, and PHOs.  One relatively affordable proprietary data source for this purpose was selected and used; The National Directory of Physician Organizations$_{TM}$, published by Health Resources Publishing, copyright 2012, in association with the Managed Care Information Center.  This was the principle information source used in identifying both physician-led organizations and health system-physician alliances. Physician practices were identified using publicly available sources from Healthgrades® and NCQA (online certification center).  The NCQA site made it possible to outreach to practices that had received

certification as Patient-Centered Medical Homes (PCMHs) and therefore might have a greater awareness and interest in care coordination and care management.

The total set of data sources to identify physician organizations included:

f) The National Directory of Physician Organizations$_{TM}$, published by Health Resources Publishing, copyright 2012, for the Managed Care Information Center

g) Healthgrades$^®$ Physician practices (selecting 5+ providers) http://www.healthgrades.com/group-directory

h) NCQA's online certification directory to identify NCQA-certified PCMH's (current web address http://recognition.ncqa.org)

Several free, publicly available data sources existed from which to identify hospital organizations, but a subscription to the American Hospital Directory (https://www.ahd.com/) proved especially convenient for obtaining key informant roles and contact information enabling invitation letters to be more precisely targeted.

In an effort to obtain some geographic variation in study participant locations, while preserving some efficiency of outreach efforts, four states were randomly selected from which to recruit hospital organizations and a separate random selection of four states was made for physician organizations and health system-physician alliances. The four states from which hospital organizations were selected included Michigan (MI), Virginia (VA), Texas (TX), and New Mexico (NM). The four states from which physician organizations and health system-physician alliances were recruited were Florida (FL), Maryland (MD), Mississippi (MS), and Vermont (VT).

Using the previously described data sources, organizations within the selected states were randomly selected and outreach to a potential key informant in a senior management position was initiated via a letter of introduction delivered by 1$^{st}$ class mail (Appendix C). The letter briefly summarizes the purpose of the study, and requests a participant who can speak knowledgably about the organizations' decision-making process for entering into collaborative partnerships to participate in a 45 to 60-minute interview. The letter contained contact information for the principal investigator and research assistant, and described how invitees can ask questions about the study or indicate their interest in participating.

Seventeen days following the initial mailing, a second notice was mailed; an identical letter with the

phrase SECOND REQUEST in large all caps red font added to the right upper section of the letter.

Uncertain of the response rate of invited participants, but expecting it to be low, 20 hospitals for each

target state were randomly selected and senior executives from these were invited to participate in the

study (for a total of 80 hospital organizations).  In anticipation of a very low response rate among senior

leaders of physician organizations and PHOs, a total of 194 invitation letters to this these organizations

was mailed as detailed in the table below.

*Table 5 - Mailed study participant invitation letters by organizational type*

| Physician Category | FL total n=79 | MD total n=61 | MS total n=25 | VT total=29 | TOTAL n=194 |
|---|---|---|---|---|---|
| Practices [1] | 21 | 14 | 12 | 10 | 57 |
| NCQA PCMH | 13 | 27 | 2 | 14 | 56 |
| PHO | 22 | 11 | 10 | 5 | 48 |
| IPA | 19 | 8 | 1 | 0 | 28 |
| Medical Group [1] | 2 | 1 | 0 | 0 | 3 |
| Primary Care Network | 2 | 0 | 0 | 0 | 2 |

[1] Practices and Medical Groups were selected if they included at least 5 providers delivering primary care.

Interviews

All interviews were conducted by the principal investigator between December 2012 and April 2013

by telephone using a structured interview guide to manage the flow and consistent wording of key

questions (Appendix D). Based on test runs using the interview guide it was anticipated that interviews

would last a total of 45 to 60 minutes, including explanations related to two separate verbal consents for

the interview and the recording and answering any questions before the interview itself began.  At the

outset of the interview informants were encouraged to offer any other related thoughts or experiences

(not necessarily asked for by the interviewer) they felt might be relevant or help explain their

organizational context. A set of initial opening questions focused on information about the informant's

organization, the informant's professional role in the organization, their prior experience with and

expected future allocation of resources to care management for chronically ill older adults, and

experience with risk-bearing contracts.  Because the focus of the research was about the various

structures and options for collaborative partnerships and not about financial or business barriers or

incentives, per the interview guide, if an informant raised concerns or questions about the financial impact

of adopting the exemplar model they were instructed by the interviewer …

> *"… to answer the question under the assumption that payment models and incentives in place would yield a break-even or modest net improvement in their organization's 'bottom line' for supporting and encouraging use of this model."*

Prior to the scheduled interview (usually one or two days before) a brief summary of attributes and

results of the exemplar *advanced preventive care* model, identical to the description that was also read

aloud by the researcher during the interview, was emailed to the informant for them to read and review in

advance of the interview.  After obtaining the initial set of information about the informant, their

organization, and experience with care management, the following description was read aloud by the

interviewer:

> *"I'd like to take a few minutes to briefly describe a new model of community-based nurse care management for chronically ill older adults.  The model has been rigorously tested for over ten years in a Medicare demonstration project.  It is a highly effective program, but one that is demanding to implement.  It represents an innovation with the potential to improve our health care system if it could be effectively deployed on a large scale.  After I describe the program, I will ask you questions about some approaches to enable a (health system/physician group/ health system-physician alliance) to provide this program to their patients.*
>
> *The program utilizes experienced nurses who receive 6 to 9 months of intensive pre-service training followed by ongoing supervision and mentorship.  These nurses deliver a broad portfolio of evidence-based preventive interventions in the community through frequent in-person contacts, group programs, and telephone monitoring in collaboration with a participant's primary care provider.*
>
> *The program is administered and tightly managed according to explicit protocols using a customized data and reporting system.  Patients receive an average of 2 to 3 contacts per month, to provide a set of services that match their needs as their condition changes over a long-term follow up period.  These services include chronic disease self-management coaching, healthy life style behavior change coaching, structured group education, physical activity, gait and balance training, medication reconciliation, transition of care support, ongoing assessments and monitoring, and help coordinating medical care and community-services.*
>
> *According to results of a carefully done randomized trial, for high-risk individuals, the program reduced hospitalizations 39%, decreased emergency room visits 37%, lowered all-cause mortality 30%, and reduced net health care costs 28%.  Other models of care coordination and care management tested by CMS have not been as effective and it is believed that tight adherence to the program's rigorous process specifications, training, performance reporting, and management practices are essential for its effectiveness."*

The interviewer would then ask, "Before I ask you questions about how your organization might view utilizing a program like this, do you have any questions about the program I've just described or anything that you'd like me to repeat or review?"

Questions following this description began to explore the perception of the informant with regard to collaborating with the innovators of the exemplar program so that they could help the informant's organization adopt and implement the model. This was first explored in an intentionally general and conceptual way and then was explored using specified models of collaborative partnership (*direct service*, *regional cooperative*, and *franchise*). The overall flow of the topics explored in the interview (from top to bottom) relating to collaborative partnerships and the objective and rationale for including each is outlined in the table below.

*Table 6 - Key areas of interview inquiry related to collaborative partnerships, objective, rationale*

| Interview Queries | Objective | Rationale |
|---|---|---|
| Reading of the description of the exemplar model of Advanced Preventive Care | | |
| **General view/perception** (Question 3a) of collaborating with the innovators of the exemplar model to implement advanced preventive care | With probing, assess extent to which key informant is supportive of or resistant to collaborative partnerships (in general) with external groups | A general aversion to collaboration would make interest in any collaborative partnership in support of *advanced preventive care* less likely |
| **Direct Service Partnership Model** (not referred to as such in the interview) (Questions 3b,c,d) Reflected in the interview by a) general willingness to partner with a resource system and b) willingness and ability for the organization to provide three core elements: 1. Introductions to primary care and/or hospital systems 2. Data sharing for case finding and management 3. Employment and lease back of staff needed to deliver care | Identify whether key informants are open to the model of collaboration that HQP has been using since inception including with health systems in its most recent regional expansion | Do these key informants seems as receptive to this approach as actual systems HQP has been working with; If not, why? |
| **Franchise Model** (Question 4) | Determine whether a collaboration model based on a franchise relationship is of interest to key informants | Tests one way to more formally structure and standardize a collaborative interface that might facilitate replication; could help identify perceived strengths and weaknesses of this approach |
| **'Independent' Model** (not referred to as such in the interview) (Question 5) preference to 'go it alone' with minimal reliance on outside help – probed in the interviews with a query related to a preference for doing it themselves | Assess whether a key informant interested in *advanced preventive care* would prefer little or no significant collaborative partnership to assist in adoption and implementation (including, as volunteered, a preference for working with *knowledge purveyors* or *change agents*) | If this is the preferred approach of a key informant it would be helpful to try to fully understand the basis for rejecting collaborative assistance |
| **Regional Cooperative Model** (Question 6) | Determine whether a shared regional resource that collaborates with program developers to deliver *advanced preventive care* to a region, and is jointly owned and governed by local health care organizations is of interest to key informants | Tests one way to more formally structure and standardize a collaborative partnership that might be possible to replicate; could help identify perceived strengths and weaknesses of this approach |
| **Other ways to disseminate / collaborate** (Question 7) suggestions generated by key informant to open-ended inquiry | Invite creative thinking by key informant to identify what they perceive could work best | Elicit other possibilities not envisioned by investigator |

With the exception of the *direct service partnership* model of collaboration, the interview was not

structured to probe reactions to the operational details of these collaborative models, but rather to allow

the interviewee to guide the depth at which they wished to respond to each model. Because the *direct*

*service partnership* was the principal means by which HQP has implemented its program in southeastern Pennsylvania for many years, more detail was focused on that model in an effort to see whether it might be a practical approach to use in other areas of the country.

Data Capture

All sessions were recorded with good audio quality and all recordings were subsequently transcribed *verbatim*.  Transcription of each interview was captured in Microsoft Word which was then directly copied as a primary document into a software application for qualitative analysis (Atlas.ti, GmbH Berlin, version 7.5.9).

Analysis

The most important findings from analysis were the specific insights and issues raised by the informants with regard to the prospects of collaborative partnerships as pragmatic vehicles for dissemination (including adoption, implementation, and assimilation).  These are best captured in the words of the informants themselves that often need no additional analysis and are shared liberally in the reported results.

In an effort to gain some appreciation for the pattern of responses obtained regarding each of the collaborative partnership models, responses of each informant to each area probed was scored by the principal investigator as primarily positive (+), negative (-), or neutral/ambivalent (0).   Given the subjective element of interpretation in making these categorizations, separate cycles of coding and review by the principal investigator were repeated until these classifications became stable.  This occurred on the fourth cycle of review during which there were minimal changes from the 3<sup>rd</sup> cycle.  The coding and analysis of subject responses was undertaken in two basic ways; 1) across all participants within a single question and 2) across all questions by participant.  Procedures used to reduce interviewer bias in coding results, included; a) the removal of overt participant identifiers in the Atlas.ti primary documents, and b) the use of repeated cycles of coding within each category of question, across all participants, to help ensure coding consistency.

The former approach was used to determine the set of issues (pros and cons) and overall acceptance across all respondents with regard to a given collaborative partnership model. While most collaborative partnership models were probed with a single question, detailed probing of three essential subcomponents of the *direct service partnership* model was undertaken. Given HQP's success using this model for regional expansion of its primary service area, it was a high priority for this study to assess the receptivity and feasibility of informant organization's in using this model to support dissemination of *advanced preventive care* on a broader scale to areas beyond the existing HQP service area.

For informants' responses to be coded as providing an overall favorable rating for the *direct services partnership* collaborative model, an informant must have rated all 3 specific elements required for this model as favorable. If all three specific model components were not rated favorably, then the overall rating for the *direct service partnership* defaulted to the lowest rating given any one of its sub-components. If one or more specific element was rated as neutral/ambivalent (and none was rated unfavorable/unfeasible), then the overall rating for the model was assigned as neutral/ambivalent. Similarly, if the one or more specific elements was rated as unfavorable/unfeasible, then the overall rating for the model was assigned as unfavorable/unfeasible.

The purpose of assessing responses across all questions by participant was to assess the overall likelihood (as *gestalt*) that a participant would partner with the program's developer (*resource system*) using any model. The pattern of responses for each informant across all questions as well as the verbal tone and inflection from the audio recording, and any 'side' comments was used to categorize what the principal investigator judged to be the likelihood that the informant would encourage their organization to engage in further exploration of *any* form of collaborative partnership (1 or more) with the program developers (*resources system*) on a relative scale of high, moderate, or low.

Informant Self-Selection: Likely to Yield a Sample of "Early Adopters"

By design, the study methodology virtually guarantees that the sample of informants participating in this study are essentially self-selected based on their interest in this topic and its importance to them and their organizations. As such, there was no expectation that the results obtained from this study would be representative of or generalizable to hospital or physician organizations in the U.S. as a whole. It was

anticipated that study participants would be much more likely to represent organizations with

characteristics of what Everett Rogers described as "early adopters" (Rogers 2003, 283).  As HQP and

other *resource systems* seek to make inroads in dissemination it is this class of organizations, the "early

adopters" with which initial progress is most likely to occur and whose opinions about collaborative

partnerships are most valuable.  Therefore, understanding what they would find useful in a collaborative

partnership is an essential first step in broader dissemination.

## CHAPTER 4 – RESULTS

Of a total of 274 mailed invitations (194 to physician organizations and physician-health system alliances, 80 to hospital organizations) 16 respondents volunteered to participate in the study for a crude acceptance rate of 5.8%. Thirty-one invitations (11.3%) were returned by the post-office for having an incorrect address (all but one from physician organizations or PHOs), leaving 243 invitations presumably reaching the intended organizations yielding an adjusted acceptance rate of 6.6%.

**Characteristics of Study Participants and their Organizations**

A total of 16 key informants completed telephone interviews with the duration of recorded questions and responses ranging from 27 minutes to 60 minutes (mean=41, median=40). The sixteen study participants represented organizations located in; Michigan (4), New Mexico (4), Florida (4), Virginia (2), and Maryland (2). No potential participants invited from Texas (20), Vermont (29), or Mississippi (25) volunteered to participate in this study.

In total, <u>12 of 16 participants (75%) were from hospital organizations</u>. Nine were senior leaders of larger hospital-based health systems and three were from smaller (less than 100 bed) rural hospitals. Two of the 9 (22%) larger hospital organizations, also describe themselves as having an affiliated health insurance division.

<u>Four participants (25%) were senior leaders of physician organizations</u>; 2 Independent Practice Associations (IPAs), 1 medical group, and 1 primary care practice.

All participants had senior leadership roles within their organizations and seemed well positioned to influence decision-making related to care management strategies. The leadership roles represented include; 3 Chief Operating Officers (COOs), 3 Executive Directors (EDs), 2 Chief Executive Officers (CEOs), 2 senior nursing leaders (Chief Nurse, Director of Nursing), 2 senior leaders for Community

Health (1 Senior Vice President, 1 Vice President), 1 Chief Medical Officer (CMO), 1 Vice President of Patient Care Services, 1 Director of Research and Planning, and 1 Practice owner/lead physician.

On the next page is a summary table (Table 6) describing the key informants and the organizations they represented.  Subsequent pages contain the main results table that summarizes the key findings from the study (Tables 7, 8, and 9).

*Table 7 - Description of Key Informants and Organizations they Represent*

| Study ID | Key Informant Role | Gender | State | Organization Type | Other[1] | Organization Descriptors Offered by Informant [2] |
|---|---|---|---|---|---|---|
| 1 | Chief Operating Officer | F | MI | Hospital Health System | R | small health system; hospital, SNF, LTC, HHA, Hospice |
| 2 | Chief Nurse | F | NM | Hospital Health System | | public safety net and academic hospital system (multiple hospitals) |
| 3 | Chief Operating Officer | F | NM | Hospital Health System | | hospital within a larger corporate health network |
| 5 | Chief Executive Officer | M | NM | Community Hospital | R | Small, non-profit community hospital |
| 6 | Chief Medical Officer | F | NM | Hospital Health System | R | small, non-profit community hospital, IDN, behavior health facility |
| 7 | Vice-President for Community Health | M | MI | Hospital Health System | | regionally owned, non-profit health system, multiple hospitals, 250 employed providers |
| 8 | Vice-President of Patient Care Services | F | VA | Hospital Health System | I | large integrated health system; multiple hospitals, HCA, LTC, medical group, insurance arm |
| 9 | Director of Nursing | F | MI | Community Hospital | R | small, solo community hospital, physician services, clinics |
| 10 | Corporate President and Chief Operating Officer | M | VA | Hospital Health System | I | large integrated health system; multiple hospitals, HCA, LTC, Assisted Living, medical group, insurance arm |
| 11 | Senior Vice-President for Community Health | F | MI | Hospital Health System | | large health system; academics and research |
| 12 | Director of Research and Planning | M | FL | Hospital Health System (originally ID'd as PHO) | | large acute care academic public hospital; HHA, Hospice |
| 13 | Chief Executive Officer | M | MD | Hospital Health System (originally ID'd as PHO) | | integrated health system with multiple hospitals, owned and affiliated physician practices |
| 14 | Executive Director | M | FL | Independent Practice Association | | messenger type IPA (contracting) |
| 15 | Executive Director | F | FL | Independent Practice Association | | messenger type IPA (contracting) |
| 16 | Executive Director | F | FL | Medical Group | | multi-practice physician group network |
| 17 | Lead Physician, Practice Owner | F | MD | Physician Practice (independent) | | small primary care practice with Level 3 NCQA PCMH accreditation |

[1] Other code: R = Rural, I = Insurance Division / Health Plan Offering
[2] Key phrases and terms provided by Informants when asked, "How would you describe your organization?"
Abbreviations: SNF = Skilled Nursing Facility, LTC = Long term care, HHA = Home Health Agency, IDN = Integrated Delivery Network, IPA = Independent Practice Association, NCQA = National Committee for Quality Assurance, PCMH = Patient-Centered Medical Home, Study ID = Primary Document (a unique ID #  created by the analytics software enabling the anonymous linking of various responses and quotes provided by each study participant)

*Table 8 - Main Results (Larger Hospital-based Health Systems)*

| Study ID | Q2a- Current CM | Q2c- Risk contracting | Q3a- General perception | Q3b- PCP intro | Q3c- Data share | Q3d- Employee HR lease-back | Q4- Franchise | Q5- DIY Imperative | Q6- Coop | Likelihood of using developer support | Selected Comments and Observations from Interview |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Larger Hospital-based Health Systems** | | | | | | | | | | | |
| 1 | limited, HF | Pending | + | + | + | + | + | + | + | High | Mission alignment; "… we really do need to develop more care outside the walls of the hospital and become less hospital-centric."; cites value of developer's "intellectual capital" |
| 2 | PCMH | Unsure | + | + | + | + | 0 | + | + | High | Values the "rigor" of the model and availability of "somebody that really can help you get where you want to be faster" |
| 3 | ER | None, ACO interest | + | + | + | + | + | + | - | High | Recognizes that many care coordination models have had "limited success"; "I could see the benefit of bringing in the resource experts to replicate something that has been very successful …"; regional competition thwarted prior coop(erative) efforts |
| 7 | HF (NP) transition coach PCMH, PACE | BPCI | + | + | + | 0 | + | + | - | High | Alignment with new strategic plan of "… being a community catalyst and improving outcomes or care."; "We have a bias toward wanting to implement evidence-based programs"; cited NFP and *CenteringPregnancy* as models also using disciplined designs; market dominance makes coop unappealing |
| 11 | PACE | None, ACO interest | + | + | + | + | 0 | 0 | + | Mod | "It sounds pretty amazing."; "We don't make everything from the ground up ... but we will need to add our perspective and shape things …"; "[APC is] reminiscent of … phenomenal … NFP model"; interested in incorporating Community Health Worker role into new models; |
| 12 | None | Pending | + | + | + | + | + | + | + | High | "We've tried things … that have not had any sustainable power to this point."; "I would be open to working with the developers"; "We need to have a group of key physician champions … I think we need that in place for us to be able to effectively collaborate with the developers of the program." |
| 13 | yes, not specified | None | + | X | + | 0 | 0 | - | 0 | Mod | Strategic alignment; informant read Wash. Post article about HQP's model and identified researcher [4]; focused on marketplace competitive advantage; past experience outsourcing services, but now wants in-house capability; " … trying to build it on our own is the way we are going, but maybe it's not in our DNA, and we have to hire somebody externally to help us do it." |

| | |
|---|---|
| + | = Positive/Favorable predominant sentiment (in the case of Q5 – DIY Imperative this means demonstrating a willingness to collaborate) |
| 0 | = Neutral or Ambivalent predominant sentiment |
| - | = Negative/Unfavorable predominant sentiment 'X' = Question was misunderstood by informant, and response discarded for analysis. |

*Table 9 - Main Results (Small, Rural Hospitals; Larger Health Systems with Insurance Divisions)*

| Study ID | Q2a- Current CM | Q2c- Risk contracting | Q3a- General perception | Q3b- PCP intro | Q3c- Data share | Q3d- Employee HR lease-back | Q4- Franchise | Q5- DIY Imperative | Q6- Coop | Likelihood of using developer support | Selected Comments and Observations from Interview |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Small, Rural Hospitals (29, 60, 96 beds)** | | | | | | | | | | | |
| 5 | not formal, 2 MSWs | Upside only gain share | + | + | + | 0 | - | - | 0 | Mod | "… any technical support we could get would be great ... maybe someone from your team is literally onsite for one or two months, helps with recruiting, gets all of the policies and procedures, … does the training … and then … wean away from the consultants." Re: franchise, "I just don't think it will be that difficult to do." "Do I really need that kind of long term expertise?" IHI is "… incredibly helpful and successful." |
| 6 | nothing "formal" | None | + | + | + | + | + | + | + | High | Mission alignment; "I think this area is very much in need of it."; Overlap of Native American service population with Indian Health Service; "… need to have more things done on a community level …"; "We would be willing to work with another organization."; "In terms of co-managing employees for a program like this, I think this organization would be very interested in it." |
| 9 | PCMH | Pending | + | + | + | + | + | + | + | High | "… we're an organization that likes to analyze what the program is, but does not want to reinvent the wheel …"; " … for smaller community hospitals … the biggest challenge is what resources and what requirements would your hospital need to implement ...?" |
| **Larger Hospital-based Health Systems with a Health Insurance Division** | | | | | | | | | | | |
| 8 | PCMH | CIN planned | + | + | 0 | + | 0 | - | 0 | Mod | "Certainly sparks interest," but no articulation of benefit working with developers; "I think, culturally we're probably still in a place where it's still kind of build-it-our own … we're trying to move away from that".; "As an institution, we like borrowing things that worked in other places …"; |
| 10 | "entire division", multiple products | ACO pending; will take risk of other payers | + | + | + | 0 | - | 0 | - | Low | "I mean my sense is that most of this stuff is fairly generic, is being studied widely and broadly from many different people across the country today, you know, you've got the Brookings Institute ACO [ACO Learning Network], you've got the Premier ACO, you've got IHI, you've got all kinds of organizations that are looking at best practice development." |

+ = Positive/Favorable predominant sentiment (in the case of Q5 – DIY Imperative this means demonstrating a willingness to collaborate)

0 = Neutral or Ambivalent predominant sentiment

- = Negative/Unfavorable predominant sentiment

*Table 10 - Main Results (Independent Practice Associations, Medical Group, Primary Care Practice)*

| Study ID | Q2a- Current CM | Q2c- Risk contracting | Q3a- General perception | Q3b- PCP intro | Q3c- Data sharing | Q3d- Employee HR lease-back support | Q4- Franchise | Q5- DIY Imperative (+ = collaborative) | Q6- Coop | Likelihood of using developer support to adopt innovation | Selected Comments and Observations from Interview |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Practice Associations (messenger type, contracting entities)** | | | | | | | | | | | |
| 14 | thru third-party, ACO under-writer | MSSP ACO | + | + | - | - | 0 | + | + | Low | This IPA uses a third-party health plan as underwriter and supplier of care management services for the ACO in which it participates.  No downside risk for IPA. First savings goes to underwriter; but if sufficient savings is realized, IPA gets a percentage.  Informant suggested to researcher that HQP consider offering its products and services to such organizations.  "… because they're in need of it, … [company name redacted] has 30 some odd [ACO partnerships].  So there's a lot of them already out there.  And are they really as effective as they could be? …" |
| 15 | None | Pending | + | + | - | - | - | + | - | Low | "… what's in it for the doctors? … how are the doctors going to be effectively reimbursed for their time? … are you going to create more administrative work for the doctor's office? … how are you going to support the doctors in various ways?" IPA does not have access to physician clinical or financial data.  Offices within the IPA have not yet started to pursue PCMH …" |
| **Medical Group** | | | | | | | | | | | |
| 16 | Limited, diabetes | ACO pending | + | + | + | 0 | 0 | - | 0 | Mod | "I think we'd be very interested.  I think we'd embrace it."; "We're behind …, 'OK, we have one patient liaison for diabetes, and one for heart failure, … but we could use 10'."; "I could see the healthcare system saying, 'We've got this expertise [available], let's bring them in.' I could see the physicians saying, 'We don't need them … we could do this without them'."; |
| **Primary Care Practice (1 physician + 1 nurse practitioner)** | | | | | | | | | | | |
| 17 | PCMH | None | + | 0 | - | NA | - | NA | + | Low | "Services like you mentioned that are … comprehensive in their nature would be something that we're very interested in."; Informant is a strong advocate for PCMH with embedded resources under direct physician control [1] |

+ = Positive/Favorable predominant sentiment (in the case of Q5 – DIY Imperative this means demonstrating a willingness to collaborate)

0 = Neutral or Ambivalent predominant sentiment

- = Negative/Unfavorable predominant sentiment
[1] Not all questions were asked explicitly of this informant who redirected the interview.  Relevant replies that were obtained are coded using the same criteria as those applied to all other participants' responses.

A Wide Range of Experience with Care Coordination/Management

There was a wide range of experience with models of care coordination and care management among informants – some indicating their organization had little to no experience, to one (health system with an insurance division) as describing their organization as having "… an entire division that is our insurance products and care management products and processes". The most common (n=6) model that informants cited for care coordination and care management of the chronically ill was the Patient Centered Medical Home (PCMH). Other program types cited were disease specific interventions (e.g., heart failure, diabetes), those occurring in a specific service location (Emergency Department – connecting patients to a primary care practice), alternatives to long term placement (e.g., PACE – Program of All-inclusive Care for the Elderly), or short-term interventions focusing on the transition of care from hospital to home. Most informants describe their current efforts related to chronic care management as not being "formal", or as "early", and the results related to these initiatives as "preliminary". None of the descriptions of the care management programs in use sounded as if they would likely meet criteria for advanced preventive care, but details of each model were typically not provided, and therefore under recognition of more robust advanced preventive care-like models is possible.

Heart Failure:

*"Yes. I would say that the program that best fits that description is our program for patients with congestive heart failure. And there we have a nurse practitioner who is a transition coach, and who works with congestive heart failure patients who are seen as in-patients in the hospital and are discharged to home, and actually does home visits, and works with them post-discharge to prevent readmission, and optimize their transition care."*

Diabetes and Memory Disorders:

*"We initiated a care coordination for diabetes, probably, 12 months ago. And that's in the primary care group. … And we are slowly developing a memory disorder with care coordination with that, but we—we've gone for grants, and it appears we've got some funding from some donors in the area. But that's probably as close as we get to that right now."*

Analysis of program impacts have not begun or are still underway for most informants:

*"Yep. Very preliminary results, but they are still working through as we plug this full implementation now, really taking a look at have those initial results really kind of borne fruit, kind of, long term? We're thinking they have, but they're really working through, still, some of the data analysis on that…"*

Health system with a health plan described a broader array of care management services than most:

*"Yeah, we've got uh, the entire division that is our insurance products and care management products and processes. Care management we've got a number of senior leaders, we've got physician leaders with deep care management background and care management experience— we've got navigators, we've got health coaches. So one of the products we have is called, Transitions of Care. …, and we see them in one of our clinic sites across the region within five days post-discharge."*

IPA Executive Director implementing an ACO with support from a health insurer:

*"The one program that we currently have is an ACO but we do not have the staffing to staff the care coordinators, but we are involved in bringing the ACO to this community. And we—the physicians that are in it—are in our IPA. So to what degree you want to consider that supporting care coordination—I'll leave it to you to determine that. … Yeah. We're going to have two full-time RN's. And our covered lives are in this—under 6000—between 5-6 thousand. So we actually are managing a smaller number than what they typically would allot for two RN's—two full-time RN's. It's—it's total care coordination, social—even to the degree of assisting with social services, and all the way through to their care with in-patient discharge and follow-up—out-patient follow-up and I don't know--that pretty much covers the entire gamut, I believe. Yes. They'll be interacting with 17 practices, 28 providers."*

<u>Care Management of Chronically Ill Older Adults Will Require More Resources</u>

<u>Informants universally agreed (n=16, 100%) that their organizations will be allocating more resources to better manage chronically ill older adults in the future</u>.  Many informants cited reasons related to; demographic forces (an aging population with increasing health needs) and changes in health care policy and payment mechanisms.  There was a widely held expectation that payment systems will continue to shift from fee-for-service to more risk and population-based payment models or that, at the very least, newer payment models will increasingly penalize systems having poor population health outcomes or excessively high acute care utilization (e.g., CMS penalty for high hospital readmission rates among traditional Medicare beneficiaries).

The perspective of one health system CEO:

*"More, substantially more. Well, there's a couple of issues. We increasingly have incentives that are built around management of populations, and relate to lowering re-admissions, they relate to health status, depending on the population, and reducing overall cost, they relate to value-based purchasing incentives, that are increasingly becoming a part of our world. And it's caused our strategies to shift from from being largely facility-based sick care to population-health. Which is why, I referenced when you asked me about a brief description of [health system name redacted], you noticed that I indicated that it was largely sick care focused today, well that's why our strategy for five years is - at least five years, I'm certain longer - to move toward population based care."*

Experience with Risk Contracting

Only one organization participating in the CMS Bundled Payment for Care Improvement (BPCI) initiative described having a contract exposing them to any downside financial risk. Nearly all had either just entered into or were planning to enter into some form of gain sharing or value-based performance agreements with upside only reward potential. One organization was actively participating in a Medicare Shared Savings Program (MSSP) Accountable Care Organization (ACO) at the time of the interview, while four others were exploring or close to concluding agreements to join or establish an ACO. Several mentioned working on establishing additional gain sharing or "upside only" incentive models with other insurers as well.

Health system COO describes preparing their ACO:

*"Yes. I mean, we will have an ACO, within our health plan options. We're currently developing our ACO and it's called [Name of ACO redacted], and that is our partnership with our doctors around integrated care that we will offer through our insurance products and we'll also contract with other insurance carriers as we take bundled risk or capitated risk going forward."*

Medical Group Executive Director describes the group's participation in a hospital ACO preparing to launch:

*"Yes, the hospital expects to have a full-blown ACO by January of 2014. We've already got three payers on board."*

General Concept of Collaborating with Program Developers is Appealing

All study participants (n=16, 100%) responded positively to the prospect of collaborating, in some general (unspecified) way, with the exemplar program developers to help them deliver the program to their service populations. Initial phrasing of this question was intentionally vague and did not specify the specific means or financial requirements for such collaboration to occur. The goal was simply to elicit a general feeling about creating a *resource system–user system* linkage of some (any) type. Left undefined, responses to this question probably best correspond to a participant's interest in some form of flexible, general consultancy or knowledge transfer, the parameters of which would be defined according to the user organization's preferences. It is also possible that some informants, despite the wording of

the question[14], responded more to the idea of using the model than collaborating with the inventors. Some measure of caution as to what, precisely, respondents actually felt positive about is therefore warranted.

Throughout the interview, if respondents asked about the financial implication of any of the collaborative models explored, they were encouraged to work under the general assumption that the net financial impact to the organization would be neutral or slightly positive. Respondents were remarkably open to "going with" this assumption and seemed relatively willing to set aside financial considerations for the purposes of the interview, though there were frequent reminders that the cost and return on investment (ROI) of such a program would be an important consideration.

From the Chief Nurse of a hospital system:

*"… I know that this type of rigor can really help a program be successful."*

The 'no need to reinvent the wheel' response came up often:

*"we would love it. I mean, we—I don't need to reinvent the wheel, so any technical support we could get would be great … 'cause we sort of have training wheels, we're sort of learning as you go …"*

In advance of specifying the types of collaborative partnerships to consider, this health system COO appears to have assumed that collaboration would come in some form of a learning collaborative as popularized by several leading knowledge purveyors:

*"I think it'd be a great idea. That only thing that comes to mind, is there's lots of collaboratives out there today. So I would say one of the barriers is collaboration overload. You know there's IHI, there's Premier, and there's a number of different groups out there, ACO collaboratives, all kinds of different collaboratives out there. So it's really thinking through—and most of them don't have proven approaches or products. They're all out there, hypothesizing, and trying to stitch together evidence-based elements to create a comprehensive program, so I would say one, the barrier is overload in collaboration, but I think two—I think most major health systems are trying to achieve this goal."*

From a senior leader whose organization had previously adopted well-recognized models, but found they lacked sustained impact:

*"How would I feel about it? I would feel, optimistic. I think it's different—you know, we have tried—I hope you don't mind if I stray here, but we have tried things like the traditional parish nurse programs-and we've worked with some folks at [institution name redacted], looking at care management models that have not had any sustainable*

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[14] "How would you view the possibility of collaborating with the developers of this program so that they could help you deliver the program to your patients?"

> *power to this point in time, I think probably, they've had some good training programs, but what they didn't have is a performance reporting in a real structured management approach to the process, so it just kind of an undefined intervention. But yes, I would be open to working with the developers to consider it."*

The interviewer's identity and the HQP program was recognized by this informant thanks to prior newspaper coverage (Washington Post) shortly before the interview:

*Informant:*      *"Are you involved in that demonstration project?"*

*Researcher:*      *"Yeah, I'm actually, as it turns out the head of the team that's doing that."*

*Informant:*      *"Oh man, how wonderful, is this? That's—I just read the Ezra Klein article, and I had a friend of mine who called me, actually, the Comptroller of the state of Maryland, and said, 'Is this what you've been trying to describe for me for the last five years?' And I said, 'Yeah, this is pretty much what I'm trying to tell you is the future of healthcare.'"*

## Analysis by Collaborative Partnership Model

<u>A NEW Model Emerges from the Research: *Replication Consultancy*</u>

In response to the general question about their view of collaborating (in an unspecified way) with the exemplar program's developers, a hospital CEO suggested an approach to make it happen:

> *"… that's why I say maybe … we contract with … your company for some sort of training, mentoring, on the job sort of thing for some period of time to help us build the program, and then off you go to the next one … I think it might be an interesting model to look at—maybe you already have — maybe where somebody from your team is literally onsite for one or two months, helps with recruiting, gets all of the policies and procedures, all that stuff, does the training, and then go to, once a month—doing a site visit once a month, once a quarter—some sort of regular phone calls, and maybe that kind of a model, where you really run your own program, and sort of wean, wean away from the consultants…. then you could—within the people that purchase this from you, you could share all the benchmarks and the metrics, and then… you could do the user group meetings."*

This informant response along with others from this study was a major catalyst for HQP's subsequent development of a new collaborative partnership model - *replication consultancy*. This collaborative partnership model (described more fully in the Implementation Plan) consists of an intensive consultancy engagement the duration of which is dynamically assessed and defined by the *user system's* demonstrated ability to implement *advanced preventive care*. Several other informants either directly expressed or alluded to their interest in a consulting model that might be larger, longer, and more

involved than average consulting engagements, but still had a delimited timeline, scope of work, and led

eventually to independence from the consulting organization / program innovators.  The end goal being

that the user organization achieves a new level of capability with which they can continue to operate

independently, having assimilated the new innovation and made it their own.  Several informants

spontaneously expressed interest in this form of assistance emphasizing their strong desire to have their

organizations become fully capable and independent in providing services like the exemplar program

described in the interview.

A health system VPCH, CIO expressed several concerns voiced by other informants related to

collaborative partnership models needing to enable full assimilation of the model and the capabilities

required to provide it for strategic, cultural, and integration reasons:

> *"if we're going to be investing in this, as an organization, I would want us to invest in it as a long term, strategic capability. And I would have concerns that an arrangement that was anything less than a fully employed arrangement would not give us a long-term sustainable capability, strategically, as an organization, that we would own, develop, and leverage in other ways. So that would be another concern. The third concern I would have has to do with culture. And we as an organization have taken the view that our culture is critical to our success, and I do have concerns that where you have an arrangement where you don't employ folks—that you don't have the same sense of—or the same - consistency of culture. And I think that is a potential problem in being able to accomplish our vision in the community and in the region. … I think that anything less than a full employment or fully integrated model runs the risk of further fragmenting healthcare delivery, rather than contributing to its integration."*

A health system COO put it this way:

> *"… we want to do is build this competency ourselves.  And not that we have to do it ourselves, but we believe that this core competency that you've just described is really the key competency of any future successful health system. So leasing that out and creating a distance from that competency, long term would-would be problematic."*

Because the *replication consultancy* model was constructed through the analysis of data from this

study after all interviews were completed and coded, it was not possible to collect reactions to or measure

favorability ratings specifically for this model in the interviews.  However, the recognition of this interest,

so strongly and clearly articulated by a number of senior leaders from hospital organizations in this study

along with subsequent confirmatory impressions from others with whom HQP collaborated, led to the

development of a *replication consultancy* model of collaborative partnership for use by HQP in 2014.  The

first successful deployment of the *replication consultancy* model by HQP occurred in partnership with an

ACO in 2015.  This initial experience and plans for further development of and likely prospects for

*replication consultancy* are described in the Implementation Plan and Discussion sections.

Summary of Findings for Collaborative Partnership Models Assessed

Across all informants and organizational types, 8 of 16 (50%) had a favorable opinion of the regional cooperative model, 7 of 16 (44%) had a favorable opinion of the direct service partnership model, and 6 of 16 (38%) had a favorable opinion of the franchise model.  Across all informants and organizational types, there was also a roughly equal distribution of neutral/ambivalent and unfavorable/unfeasible ratings across the models as depicted in the figure below.

*Figure 5 - Favorability Ratings of Collaborative Partnership Models (All Organization Types, n=16)*
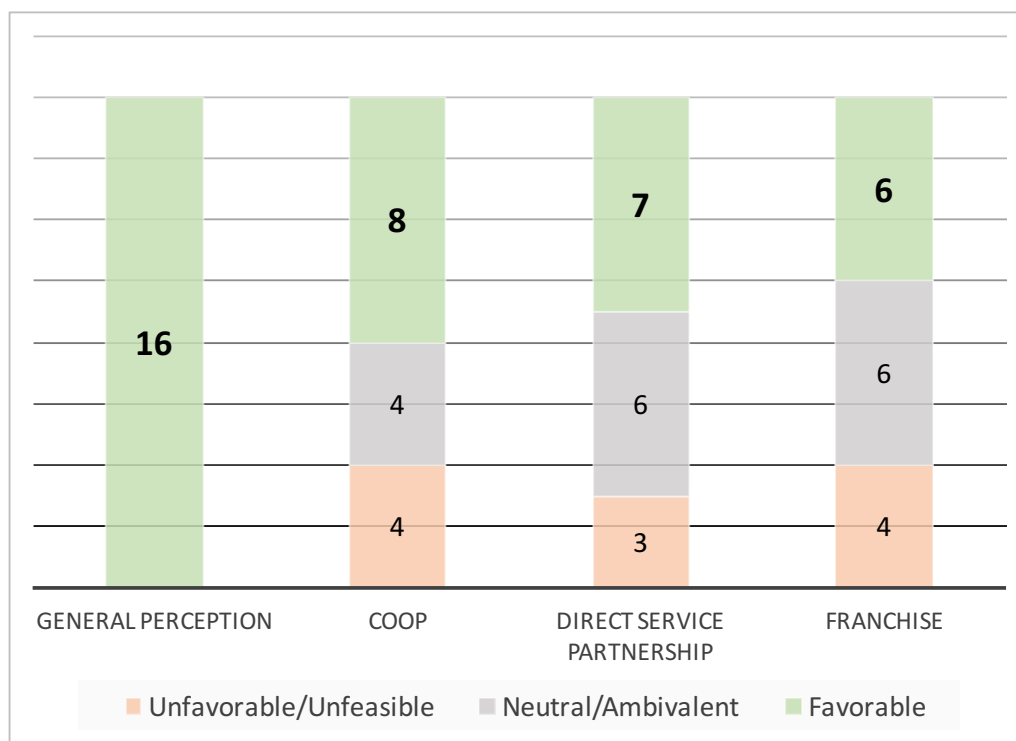


The pattern changes however, when analysis is conducted within each major organizational type. Analyzing hospital organizations only (n=12); a roughly equal number of subjects rated the three primary models favorably (7 for direct service partnership, 6 for franchise, and 6 for regional cooperative), but the

direct service partnership had the least negative (unfavorable/unfeasible) ratings (0), while the coop model had the most negative ratings (3).  This is represented in Figure 5 below.

*Figure 6 - Favorability Ratings of Collaborative Partnership Models (Hospital Organizations ONLY, n=12)*
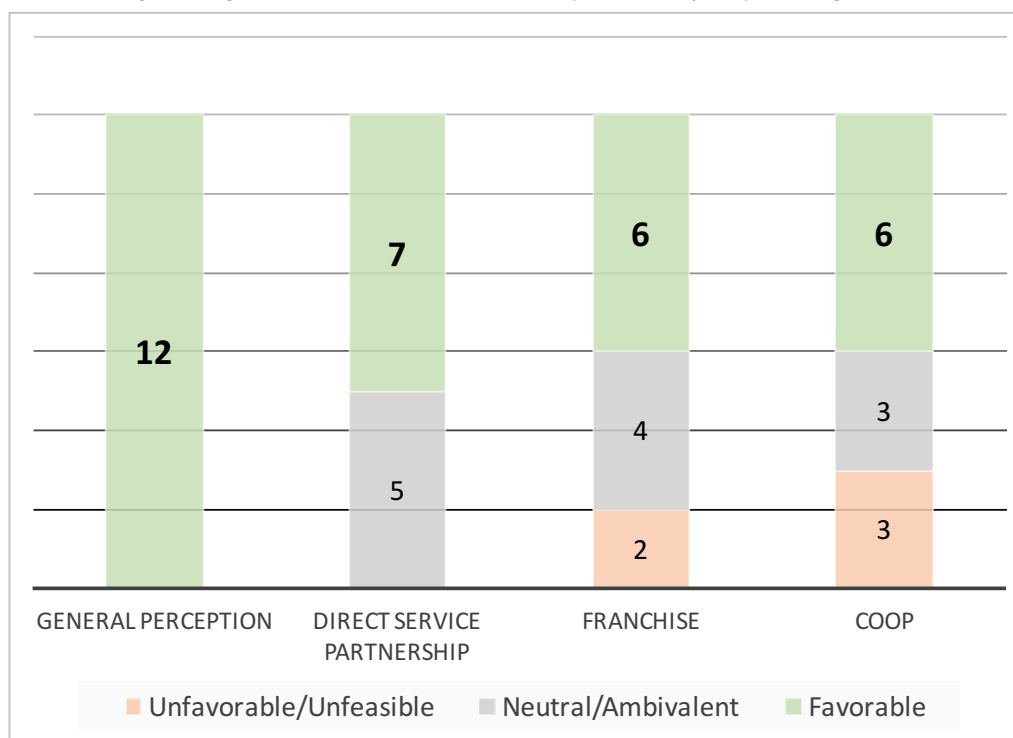


Among physician organizations, the only collaborative model with any favorable rating was the *regional cooperative* model – (2 out of 4, 50%).  In contrast to hospital organizations which rated the *direct service partnership* as most favorable, physician organizations rated it as the most unfavorable/unfeasible model (3 out of 4, 75%) as shown in Figure 6 below.

*Figure 7 - Favorability Ratings of Collaborative Partnership Models (Physician Organizations ONLY, n=4)*
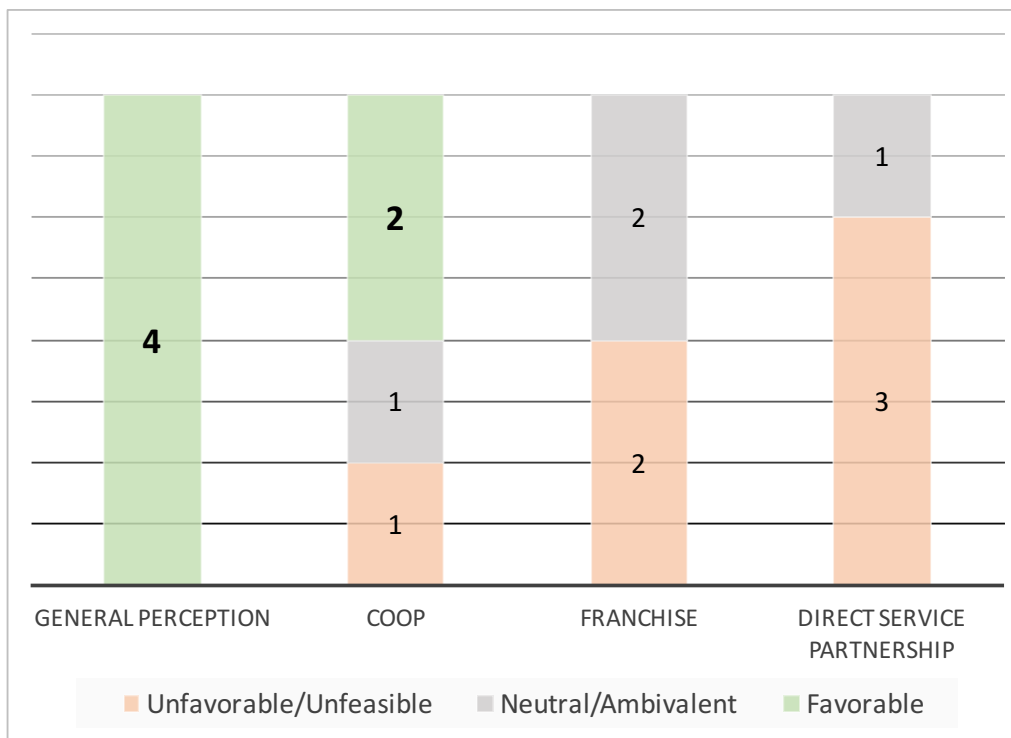


*Direct Service Partnership*

Overall, 7 participants (44%), (5 from larger health systems, 2 from smaller, rural hospitals) reported being able and willing to provide all 3 support elements required for the direct service partnership model. Most informants from hospital organizations seemed to have relatively little difficulty imagining using this model, recounting that they already had experience with the specific logistical subcomponents of this model: facilitating collaboration with PCPs, sharing data, and leasing back employees. Those favoring the approach saw certain advantages for their organization as noted in the quotes below.

CEO:

> *"I could conceivably see the same thing with that kind of program where, you guys or this vendor, or whoever it is, builds up a cadre of experienced managers—and, you know, basically—it's our program, so to speak, but we hire you to manage it."*

Chief Medical Officer:

*"But in terms of co-managing employees for a program like this, I think that this organization would be very interested in it. Just because the mission and the principle behind it are very community-oriented, and this collaboration would expedite what we could do in this community with the patients that we have."*

Four of five informants representing hospital organizations that were neutral or ambivalent about the *direct service partnership* model were unsure of the employee lease back component. Two may have felt this way because they believed such measures were unnecessary to implement *advanced preventive care*;

CEO:

*"I just don't think it will be that difficult to do."*

Corporate President, COO:

*"… my sense is that most of this stuff is fairly generic …"*

This raises the interesting question as to whether these potential users are underestimating the challenge of effectively implementing *advanced preventive care* or whether the program developers are overestimating the challenge. These same two informants also hinted that the motivation of generating revenues and surpluses for the developer was perhaps an issue as well – quite apart from the ROI that might be realized by the adopting institution.

CEO:

*"… somebody's gotta make money, so there will be some sort of fee in there for you guys. Which means it's a more expensive program. … I guess the question is … do I really feel that's a program that I couldn't do on our own? …"*

Corporate President, COO:

*"… I think it depends on what's the goal of the body that has the intellectual property. Is the goal you know, advancing better healthcare and more coordinated care, advancing societal health status, or is the purpose making money …"*

These perspectives may indicate that some leaders are inclined to view with immediate suspicion a *resource system* support model that is perceived as intensive or expensive (even if this is objectively

necessary for program fidelity and reproducible effectiveness) as overpriced for something some systems already presume themselves capable of doing, should they choose to prioritize the development of such programs.  These are the kinds of perspectives that were considered (along with the organizational cultures preference for building programs themselves) in assessing an informant's overall likelihood of partnering with the *resource system* – as discussed later in the analysis section.

Other hospital leaders that were neutral or ambivalent about the *direct service partnership* model conveyed the sense that they wished to have the program was more completely under their control and more fully integrated as a core capability of their organization.

CEO:

> *"... I have to put on my competitive hat.  We as an organization want to own this as part of our core strategy, and so, I would not be very interested in putting someone into the mix who was not working on behalf of [organization's name redacted] health care market position, relative to this. … We're clearly interested in building a cadre of individuals who have this as a competence for the organization. So in the end we're not interested in – we may not be, I don't know yet – interested in someone to ultimately manage this on our behalf …"*

None of the four physician organizations in the study rated the *direct service partnership* model favorably.  For three (the two IPAs and one primary care practice) it was because some elements of the model such as data sharing and employee lease back options were not logistically feasible for them.  For the fourth, a medical group, it seemed less about feasibility and more about gaining a consensus between administrative and physician leaders;

Executive Director:

> *"I could see the health care system saying, 'We've got this expertise [available], let's bring them in.'  I could see the physicians saying, 'We don't need them … we could do this without them'."*

*Franchise Model*

Six participants, all hospital organizations (4 health systems and 2 smaller rural hospitals), had a favorable opinion about the *franchise* model. The reasons for supporting the *franchise* model included the opportunity for reproducible impacts and program consistency, rigorous management, and a sense of

positively combining direct local control of service excellence and customer experience with proven

outside expertise.

COO:

> *"Well, the advantage that I would see is that you've got capitol intellect-that you'll have more resources, more capitol intellect to pull from, so if the wheel's been invented you don't have to invent it and both can be resource-intense if you're trying to do it from scratch on your own."*

COO:

> *"… I think it again goes to the idea of a little bit of innovation, it also goes toward having something that is sound, and that I know is sound, and why not allow that to be utilized?"*

Director of Research and Planning:

> *"I think it has some potential to enhance, I have to say from a selfish standpoint—if the franchiser is—has a good image, brand, could link it to our local brand, I would hope it would strengthen the value that our residents would see that [Organization Name] is bringing to them."*

VP Patient Care Services:

> *"I think the thing that would be attractive—of course—is that you would have the model, but that you would have a little more control of the model. So that you get given kind of the blueprint but at the end of the day you're really still kind of controlling the people and the processes, so you know, that may actually meet our needs more than some other models, where they're more joint venture and you lose control of the people."*

On the other hand, some informants perceived the *franchise* model as either unnecessary or a

symbol of corporate business objectives that could run counter to person-centered care.

CEO:

> *"If I thought I couldn't get qualified people, or I thought it was that complicated to manage, then I might consider that, but I just don't see that as a problem. … what we're thinking is, as the inpatient business shrinks I will shift people, and train people into more of the outpatient area to do this. So I just don't anticipate it will be that difficult to do."*

Corporate President, COO:

> *"… it could be-it could be monetized through franchiser-franchisee relationship, but again, from [Organization's Name redacted] perspective, we believe that this is core and central to basic content knowledge and core competencies for any successful healthcare system going forward."*

IPA Executive Director:

*"My initial reaction to that is negative, just overall.  It just smacks of government bureaucracy and it further removes the doctor from the patient relationship. In order to do something like that, IPA's would have to restructure—would definitely have to restructure, to have something like that."*

Primary Care Physician, Practice Owner:

*"So franchises, you know, they're branded. When I think of franchises, I think of McDonalds, you know? And franchises are business models and if you think of McDonalds, you know, the motto of reproducibility and efficiency etc., etc, all that stuff, that is of business, you know, we must be business people. But there's a lot of business of medicine that has really driven our whole healthcare system in a totally ridiculously wrong direction and that's what we're trying to fix, so I think that the reason why I'm hesitant to allow a franchise to take over is that I just think that all of those sort of tendencies of businesses to get profit-minded and you know, to be bottom-line-minded could pose a real threat to patient centeredness."*

Two interesting dimensions about the *franchise* model surfaced in the course of the interviews; branding (public vs. private) and the corporate status of the franchiser (profit vs. non-profit).  With respect to branding, while some informants suggested that a strong public brand might be welcome and adopted by their organizations, other informants were clear that that would be unacceptable and that a private label option would be necessary.

VP Community Health:

*"I'd want to understand any branding issues, um, that might come with that, if we're talking about private label franchising, versus branded franchising, you know, that might make a difference, but I can see the advantage to a franchise model."*

CEO:

*"Absolutely. I don't want anybody's name between my market and the organization."*

There was a range of opinion related to the importance of the corporate status of the franchiser with a somewhat greater overall preference favoring a non-profit status.

COO:

*"If you have a-a real for-profit mentality coming into a real not-for-profit mentality, the clash there could get in the way."*

Chief Nurse:

*"I'm a nurse, and pretty naive about some things, but if I knew that somebody's whole premise was that they wanted to help people, and that it was non-profit, and something came up that none of us anticipated, something beyond somebody's control, I would tend to be a lot more forgiving than somebody that, every time I have a phone call, their hand is out. And especially when I see their name on the stock exchange or something like that."*

COO:

*"It would not make a difference. Probably because of the culture here."*

CEO:

*"You know, if you're running your business the right way, whether your non-profit or for-profit, I'm not sure there's a whole lot of difference anymore."*

VP Community Health:

*"… but I think if it were to be a branded franchise, then I would have concerns about it in any case, but if it was a for-profit organization, I would have even more concerns about that. Because I think there would be some challenges to our culture, if—as a non-profit—this locally owned organization—if we were in the business of promoting a for-profit national brand."*

VP Patient Care Services:

*"I think our board of directors, certainly a place that was a not-for-profit probably feels a little better to them, since we're a not-for-profit organization, but again, I think, you know, if we work through this, that is not a major deterrent. I do think at first blush, you know, our board of directors is always more interested in doing work and having partnerships with other places that are not-for-profit."*

CEO:

*"It probably doesn't matter. We've worked with both for-profit and not-for-profit."*

Med Group, Executive Director:

*"I'd probably prefer it be it be a not-for-profit. But then, I'm a not-for-profit, and I think the goals are aligned differently in a profit and a not-for-profit. … when you talk about it being a for-profit organization, you kinda go, 'well why wouldn't we just figure it out ourselves? Instead of just using them'."*

*Regional Cooperative Model*

Eight participants in total; 6 hospital organizations (4 health systems and 2 smaller, rural hospitals), 1 IPA, and 1 primary care practice rated the regional cooperative model favorably. In the *regional cooperative* model developers can collaborate with an entity dedicated to creating a shared capability to deliver *advanced preventive care* across the population served by several health systems in a

geographical region. The interest in a *regional cooperative* varied greatly based on the competitive landscape of an informant organization's service area and the relative position of the participant's organization within that marketplace landscape. In areas where competition is stiff, health systems minimally communicate or coordinate efforts with one another, or prior cooperative efforts have failed, or the organization is the dominant player in the market, there is little appetite for this form of collaborative partnership.

COO:

> *"I think it'd be hard to pull off in this market. Each of the health care … are highly competitive with one another, each of the hospitals owns its own health plan. So the health plans compete with member's lives. Each of the hospitals we compete head-to-head very aggressively with one another… I think would be harder in the New Mexico community to pull off because of the competitive nature of health care in this community."*

VP Community Health:

> *"I think there would be greater value in integrating care within our continuum at [Organization Name redacted] than there would be in the value of collaborating across organizations. And I'd say that's in part because we own such a dominant market-share in our region. You know, I think if we were a smaller player, from a market-share perspective then I might have a different view about that."*

Corporate Pres, COO:

> *"My opinion on that is that for smaller, less sophisticated systems, that that may be a reasonable solution. I think that for larger, more complex systems, I think we would take a more collaborative model but with us driving our own future destiny."*

CEO:

> *"Well, if I got to pick and choose who the other individual organizations were in the collaborative I think we would be open to that. If it allowed us to create you know, a competitive position, but if what it did was create value for the consortium and reduce the value of the underlying organization we'd be challenged with that."*

IPA Exec Dir:

> *"I doubt it. There's gonna be mistrust, competition, uh—I really can't see the hospitals working very closely with the practices, no. I don't see that as something they'd jump on right away."*

By contrast, in more rural or less competitive areas, and where there has been a prior track record of healthcare organizations within a region jointly cooperating this way, the *regional cooperative* model was very favorably received.

COO:

*"We serve about 22 counties … we do have some regionalization … It wouldn't be a huge challenge for us, here."*

Chief Nurse:

*"That's not dissimilar to some other things we've done on a small scale. … if it could be done, it would be very favorable. 'Cause then potentially, you know, you wouldn't each have to have … 10 of their own people doing things; you could potentially share resources."*

CMO:

*"… there's already been a lot of people who feel that the best way to bring healthcare here is to collaborate very closely with the Indian Health Service. Because that's probably where we have most of the duplication of services, and people getting lost between the two hospitals—between the two services. So a regional one that actually looks at the total community needs, to me, would be better than, just like, this hospital participating, or the Indian Health hospital participating. … and there's such a disconnect, and that's probably one of our biggest population needs—in terms of chronic care and follow up, that's one of the biggest populations. And if we did it with both hospitals, the results would be much better than if just one hospital did it by themselves."*

Director of Nursing:

*"In our area, I think a model like that would probably actually work, we have other collaborative cooperatives going on right now with—we have [geographic region name redacted] Health Plan that's a cooperative of all the health care organizations in the [geographic region reference], so there are other collaborations that are—that are done in this area, so I think that that would be something that could work. I think um, the enticing part would be: … maybe share resources, and, you know, maybe lower costs by the group taking on initiatives"*

Director of Research and Planning:

*"Very supportive. That's what we're intending to do, anyway, is create exactly that type of structure. For a lot of clinical service lines—you know, you've got three organizations in a triangle, geographically, between [Organization Name1, Organization Name2, Organization Name3 - redacted], we don't overlap in markets, we have to be leveraging one another's talents, and we haven't done that historically, … We're working on developing that. We're using 3 or 4 critical specialties that give us the highest degree of what we think is the highest potential and probability of success and those are coming in to play over the next few months and I would say they will be fairly robust within a 12-month period. And then we'll springboard from that into clinical service lines to show the rest of the physicians that they don't need to be threatened by their peers in the communities a 100 miles away."*

Primary Care Physician, Practice Owner:

*"I mean, I think that strikes me as way more appealing than joining a hospital-based ACO, because I feel like the hospitals are at cross-purposes, they might wind up being unified for purposes with us, but it's a lot more appealing for us to think about this matter, as far as a regional sharing rather than a hospital-specific sharing… So patients like mine go to any number of four different hospitals, so it's really made it impossible*

*for me, and very unfavorable, in addition to impossible, to really join an ACO that's hospital-based."*

The *regional cooperative* collaborative partnership model was the only collaborative model that received a favorable rating from any of the physician organizations.  The potential of realizing a *regional cooperative* model through its implementation within the structure of an ACO is an intriguing possibility explored more in the Implementation Plan.

*Table 11 - Count of organizations favorable to Three, Two, One, or None of the three collaborative partnership models investigated by organization type.*

|  | Three Models | Two Models | One Model | None |
|---|---|---|---|---|
| Hospital Organizations n=12 | 4 | 3 | 1 | 4 [a] |
| Physician Organizations n=4 | 0 | 0 | 2 | 2 |
| Totals | 4 | 3 | 3 | 6 |

[a] 2 of the 4 informants from hospital organizations unfavorable to the models explicitly tested were self-advocating what is described here as the *replication consultancy* model and seemed favorable to collaborating with program developers through that model.

**Who is Most Likely to Collaborate with Developers?**

High Likelihood of Collaborating

Seven participants (44% of all study participants) were classified as having a HIGH likelihood of collaborating with the exemplar program developers (resource system) to bring advanced preventive care to their service populations, using one or more of the specific collaborative partnership models described. Of these, four were favorable to all three collaborative models.  Two had unfavorable assessments of the *regional cooperative* model and one of these was also neutral/ambivalent about the *direct service partnership* model.  Another was neutral/ambivalent about the *franchise* model.

This cohort of likely collaborators also all (n=7) represented hospital organizations and had a favorable score on the "Do-It-Yourself Imperative" question, meaning that they described their organizations as positively valuing and/or had engaged in collaborative partnerships or had adopted programs developed by others.  They did not have an organizational culture that expected new programs

to be created only by their organizations.  Several also voiced their understanding of the difficulty in

successfully and reliably implementing robust models like *advance preventive care*.

There are significant limitations and systematic biases inherent in this study design that need to be

carefully considered in drawing any conclusions about the likelihood of a collaborative partnership

occurring between organizations like those represented in this study and the exemplar program

developer.  These are considered in the Discussion section of this dissertation.  The pattern of past

actions, operational context, and logical arguments provided by some informants in response to the

questions asked in this study, strongly suggest that program innovators have an opportunity to facilitate

dissemination of *advanced preventive care* by actively collaborating with at least some early adopter

organizations.


Lower Likelihood of Collaborating

There was a wide range of factors that led to nine participants (56%) being classified as having a

Low (n=4) or Moderate (n=5) likelihood of collaborating with exemplar program developers.  For three of

these organizations, including the two particular IPAs and one primary care practice participating in the

study, this was due to business limitations based on the size and nature of their organizations.  The same

limitations might not necessarily apply to other IPAs or practices that did not participate in the study.  For

other organizations (n=3) the "Do-it-Yourself Imperative" was unfavorable to adopting programs from

outside the organization or working collaboratively with external partners to implement new programs.

For others it was a combination of underestimating the rigor and need for disciplined implementation of

the exemplar *advanced preventive care* model or preferring a level of support that wasn't available in the

collaborative models offered – especially one that was less permanent than the collaborative models

tested, all of which obliged the adopting organization to sustain some type of perpetual linkage with the

program developers.

For many organizations the requirement of a perpetual linkage to the program developers appeared

to significantly impede what otherwise might have been an enthusiastic willingness to collaborate with

program developers even if for an extended period of time, but not an unlimited or undefinable period of

time.  For those participants, the *replication consultancy* model would provide a robust collaborative *resource-user system* engagement that is time-limited.

**Other Ideas Offered by Informants at the Close of the Interview**

The interview's closing question soliciting any other thoughts the subject had about useful ways to help make the innovation (*advanced preventive* care) available to the populations served by their organization evoked a wide range of responses.  Below is a sample of some that seemed more useful in considering future strategies for dissemination.

COO reaffirmed that the expertise of the innovators is not widely available:

*"Well, and I think you certainly—what you bring, that is intriguing to me, is a level of expertise that, again, I don't have locally in the market. And my parent organization doesn't have it.  My current organization already has a lot of wonderful resources for me. We have a Chief Medical Officer for Quality, we have a Vice President for Health Information Management, but for Care Coordination, we don't have anyone. … There's always a benefit to being a participant member in these types of things and that's kind of my goal—is to be able to get your end product and see what I can learn to better myself and this organization from it."*

CMO reiterated need to redesign care to be more community-integrated, proactive, and preventive:

*"Well, one of the reasons, after reading your initial letter, that I wanted to have this conversation, is that we definitely realize the need to have more things be done on a community level, like the health coaches—or whatever you want to call them—but it's been difficult in this area and if there's some kind of a program that could help us bring it here especially to those populations - the dialysis population and the diabetic population - that would be huge in decreasing our hospital readmissions and all those kinds of things. Which of course, in the future we're not going to get paid for anyway."*

VP for Community Health suggested that demonstrating the value of the innovation (if possible) within the context of a major payment reform initiative would promote dissemination:

*"If you could tie it to—for example, a CMS initiative-if there's a way to tie it to—a benefit in a program that folks already have, you know a commitment to, and an engagement with, and be able to demonstrate that this program can add value in those areas—I think that would be—I think that would be helpful. And I think it would to the extent that you're question's about, how to better market this, and what would make it more appealing, I think that that would do both."*

VP(s) for Community Health (as well as other informants) saw similarities in key attributes of the HQP model of advanced preventive care to other well-tested programs with disciplined designs and an expectation of fidelity in replication, raising the question of whether dissemination strategies similar to theirs might also work for HQP:

> *"I'm thinking about other models that are, maybe analogous to what you're describing … the Nurse Family Partnership and the Centering Pregnancy. Or Centering Care. … those are, fairly proscribed models of care delivery—in the case of Nurse Family Partnership, it's a model of care coordination—that are community-based and … health system-based—and have been promoted successfully around the country—adopted successfully around the country—where, essentially, the Centering Pregnancy is a franchise model where you pay a fee to be able to use their materials, and to be able to have training services, but you have to meet certain requirements in order to be able to participate. So anyway, those are a couple models that come to mind that have been successful and that we are using in our community— not [Organization Name], specifically, but our Health Department's using the Nurse Family Partnership, and our competitor in town is using Centering Pregnancy, but I think they might be some models that you might look into, that might offer insight into how to do this, with the care coordination approach you're talking about."*

Corporate President and COO made a point about the innovator's motivation and goal determining the approach to dissemination. [Researcher Note (as CEO of HQP) – HQP believes that collaborative partnering to assist health care organizations to implement advanced preventive care may be necessary, not primarily to generate revenues for HQP as a business strategy, but to ensure faithful replication with sustained model effectiveness.]:

> *"If the goal is, you know, evidenced based research and evidenced based program development, I think there's plenty of great ways to share that in the industry today, through the Advisory Board, through various collaboratives that currently exist so I think there's plenty of ways to share the information. Now as you transition to trying to understand a model, to trying to implement a model, you can sell consulting services, and programmatic implementation services and some of those you kind of mentioned today, with different relationship models, like employee lease-back and other regional oversight groups. But I think it depends on what's the goal of the body that has the intellectual property. Is the goal you know, advancing better healthcare and more coordinated care, advancing societal health status, or is the purpose making money? So those are really different objectives. Not to say you can't do both of 'em at the same time but, I mean there's probably twelve national collaboratives of significance, of stature, of credibility working on these accountable care methodologies and care management models, today. You know, so there's plenty of ways to plug in if the goal is altruistic. If the goal is altruistic and to make money, then that's a different model."*

SVP for Community Health, as did other informants, drew an analogy with the Nurse Family

Partnership model and also suggested the use of community health workers in future models:

> *"...this is reminiscent of a model that I've had some experience with, and I think it's a phenomenal model, and that's the Nurse Family Partnership model. But I'd also like the thought around having people that have a different skill set, maybe included or considered on this team. And I'm referring to community health workers, and the value that they bring to the table in terms of helping people navigate some of the more sort of, what we call social determinants of health. … in terms of those social determinants, and those skills around navigating those elements just maybe consider adding another member to the team, or adding a nurse that also has a strong background in social work … But what's great about the community health workers are they are a um— particularly they are you know, natural members of the community, they have at least a high school diploma, but some of them don't have much more than that, but they have a tremendous ability to get people to the resources and you know, really help move them from one point to another, whereas a nurse you know, I mean, she gets paid at a much higher pay rate, so--she can't accompany a patient to an appointment, she can't help, you know, make sure that the transportation connections get made, and you know, and I'll sit here and wait to make sure--I mean, the nurse may make more phone calls, it's just—in some ways that's not the best use of the nurse's time. … And so one of the models emerging is we have community workers in neighborhoods and some of these people are from these neighborhoods. So they're trusted, they're respected, and that goes a long way, in terms of getting people motivated to do some of the right things. Coming from a trusted member of the community. And not to say that people don't trust your nurses, but they trust them with medical things, but they may not trust them for those other elements that actually are a key part of health too."*

Executive Director working with an outside company enabling ACO participation by physician groups

suggests talking with such companies to offer the HQP model of advanced preventive care to improve

their performance:

> *"You probably would want to approach a [company name redacted]-type of company and say, "Look, I know you're doing ACO's, we have another very similar model and you're already helping establish these. What about this concept? Could you roll it into the portfolio that you offer? Or could you take what we've done that you may not be doing in your ACO infrastructure to make it even more effective so that you'd achieve this 28% savings in delivering healthcare." Because I don't know if they're achieving that, and when they aren't, that's money out of their pocket."*

Executive Director described the challenge of being in the transition state between delivering care in

a system optimized for fee for service reimbursements versus one designed to optimize the population's

health:

> *"… we're behind what you described, but we have the initiatives going on to get there. … the healthcare system's been focusing on the ACO and the risk and so, for those of us in kind of the day-to-day arena, we're struggling with saying, "Ok, we have one patient liaison for diabetes and one for you know, heart, but we could use 10, and you*

*know," but the financing's not there, and the way to pay for it's not there. So, that's kind of where we are."*

**Summary of Results:**

Among a likely set of early adopters of innovative models of care delivery, there appears to be positive interest in collaborating with program developers as a means to support the adoption and implementation of an exemplar model of *advanced preventive care*. Hospital organizations appear more likely to utilize such collaborative partnerships than physician organizations, though the small number of informants from physician organizations is reason for caution in drawing this conclusion.

None of the 3 collaborative models investigated was universally viewed favorably or unfavorably by informants. All three had contexts in which they seemed likely to be supported by some informants.

Among healthcare organizations that could reasonably be classified as "early adopters" of innovations in population health management and chronic care management, there is interest in engaging in collaborative partnerships with the original program developers of an innovation like advanced preventive care for chronically ill older adults. Larger hospital-based health systems and smaller rural hospitals seem most interested in and capable of such collaborations. In contrast, health systems with their own insurance divisions, independent practice associations, medical groups, and primary care practices were less inclined and/or have less capability to pursue such collaborations. The small numbers of these latter groups of organizations participating in this study does not allow valid generalization broadly across these sectors of the health care industry.

Even among early adopters there is a big drop-off between the level of general enthusiasm for adopting the model through collaboration with the innovators absent any specific criteria for how such a partnership is modeled as compared to reaction to specific forms of various collaborative models.

Conclusion – The design and criteria set for collaborative partnership models impacts the potential for *resource systems* to play a role with *user systems* in adopting, implementing, and assimilating an innovation. For those organizations highly motivated to adopt this innovation and to collaborate with the developers to do so, multiple strategies for collaborative partnering were viewed positively. Among these

most motivated organizations, the *direct service partnership*, *replication consultancy*, *franchise*, and

*regional cooperative* models all enjoyed some measure of support.

## CHAPTER 5 – IMPLEMENTATION PLAN

**Overview and Aims of an Implementation Plan**

The aim of this implementation plan is to further the development of promising models of collaborative partnerships based on the results and insights obtained from this study. More broadly the implementation plan is to advance HQP's mission of developing and disseminating new, more effective models of *advanced preventive care* to improve the health outcomes of vulnerable populations, especially chronically ill older adults. There are two dimensions of applied R&D related to improving prevention models in order for such work to make a significant contribution to public health; 1) developing effective programs and system redesigns that improve health outcomes, and 2) developing effective mechanisms to disseminate models proven to be effective. This study has focused on investigating various forms of collaborative partnerships that might exist between program developers and program adopters to enable dissemination of *advanced preventive care*. Both of these dimensions are daunting and complex and both require intentional planning, constancy to purpose, and committed resources. Health Quality Partners has tried to pursue both of these areas of work in a manner that enables it, as a non-profit organization, to do so in a sustainable manner.

The results of this study informs the implementation plan in several ways. First, and most importantly, is the recognition that among early adopters there is a willingness to consider implementing *advanced preventive care* by directly collaborating with the program's developers. Among organizations appearing most likely to adopt *advanced preventive care* one or more models of collaboration were viewed positively, but no single collaborative partnership model was acceptable to all interested organizations. Therefore, to the extent feasible, offering a few different models of collaboration would increase the probability of establishing productive linkages with organizations to facilitate program dissemination. Second, informants spontaneously expressed their desire for an alternative collaborative option not presented to them during the research interviews. The alternative model that emerged from

this research would enable HQP to intensively support, train, and advise the staff of another organization to learn the program, assimilate it, and implement it with fidelity, eventually becoming independent in doing so.  This new model of *replication consultancy* would allow organizations to gradually wean themselves off of HQP's comprehensive and intensive support over time.

What follows is a description of the variables taken into consideration in creating the implementation plan as well as the specific action steps it requires.  The key elements of this plan were presented to and approved by the HQP Board of Directors on March 25, 2016 as a strategy to achieve greater resilience and mission fulfillment.

**Resources: People, Funds, and Infrastructure Elements**

People

HQP's Board of directors, executive team, and staff, as well as HQP's consultants (providing legal, business, IT development, and analytic services) would all be engaged to support this implementation plan.  Because of its long-standing work in this domain, HQP has developed a highly skilled and knowledgeable team of people with the experience and capabilities needed to execute an implementation plan such as the one described here. At its current staff size (n=22), HQP could implement, at most, 3 or 4 simultaneous dissemination projects – depending on their size, scope, location, and timing.  While this organizational size is a limitation it has also proven to be an advantage in terms of maintaining a highly efficient, lower-cost structure enabling the team to weather significant discontinuities in projects and funding.

Enlisting talented people through organizational partnerships has been critical to growing HQP's organizational capabilities to support this work.  HQP currently has a legal/business consultant that has helped HQP configure effective contracts for work.  An IT development partner aligned through a shared revenue business arrangement as well as a shared mission has been instrumental in allowing HQP to develop a robust software application to support the large scale implementation and management of *advanced preventive care*.  HQP's research partnership with the NewCourtland Center for Transitions and Health (University of Pennsylvania), has yielded several studies related to *advanced preventive care*

now in various stages of publication with more planned.  These organizational partnerships have been and will remain essential to HQP's ongoing implementation plan.

Funds

In most cases, adopting organizations will also be the primary funding source, but supplemental funding may be possible in some cases through foundation or government grants or contracts.  Over the past 15 years, HQP has contracted with CMS, a health insurance plan, an ACO, and multiple health systems.  In all such cases these have been demonstrations programs or special projects by which sponsoring organization have funded HQP's work through cooperative agreements or contracts for services and not through any 'standard' or 'mainstream' health care provider billing or payment mechanisms.  Nearly all of HQP's program development and innovation costs have been covered through surpluses associated with these contracts (i.e., self-funded R&D).  It is expected that similar funding sources through new contracts with organizations desiring to adopt and implement or have HQP provide *advanced preventive care* will continue to support the implementation plan described here.  The funding from upcoming projects will depend on the size, scope, and duration of each project and the negotiated price for services between HQP and the adopting organization.  To date, HQP's Board has not supported charitable fund raising as a funding option.  There is active consideration re: pursuing foundation or research grant funding either alone, or more likely, in partnership with other organizations already being funded through such sources.  For fiscal year 2015 (ending June 30, 2015), HQP had total revenues just under $3.5 million.

As a rule of thumb, HQP prices its engagements to cover its costs (primarily staff salaries, benefits, and overhead on a time and effort basis) plus a 10% to 20% "mission/innovation fee".  The mission fee is intended to provide ongoing support for new research and development including; the design and testing of new care models, research studies, or software development.  In situations where this pricing approach is not possible for a particular project that offers an especially good opportunity to advance HQP's mission or strategic aims and objectives, HQP may forego the mission fee or cross-subsidize a project from the mission fees collected on other projects to enable such an engagement to move forward.

<u>Infrastructure Elements</u>

A key infrastructure element required for utilizing collaborative partnership models to disseminate *advanced preventive care* is an IT application to support implementation in order to scale and standardize processes, training, and analytics to support program management to achieve fidelity to the model and service reliability.  For the past two years, HQP has been developing an IT application named SPERO® - (Latin meaning 'I hope') which is specifically designed to support teams to implement the HQP model of *advanced preventive care*.  In the development of this application, HQP has partnered with software development and data analytics company with experience creating such applications for use in health care.

Integrated within the SPERO® platform are several infrastructural elements designed to support 5 operational domains for reliable program implementation; policies and procedures, staff education, participant education, data management, and analytics (primarily management reports that assess performance and identify unwarranted variation).  SPERO® is deployed as a secure, scalable, cloud-based, software as a service – requiring an ongoing subscription.  Through HQP's partnership with an IT company helping to develop the application, the integration of large amounts of data is provided as part of the software subscription (e.g., CMS claims data supporting ACO operations).  The development of custom interfaces with electronic medical records or other systems is possible, but Web service and API (application programming interface) mechanisms for interacting with other systems is anticipated to be the most common means by which SPERO® will interact with other existing IT systems.

The first deployment of this application occurred in July 2015 with an ACO collaborative partner using the application in the context of a *replication consultancy* agreement with HQP.  Subsequent to several improvements, version 2.1 of the application was released in June 2016.  HQP and its collaborative partners are expected to be fully utilizing this tool to deliver *advanced preventive care* before the end of 2016.  This asset, which will continue to evolve in terms of functionality and ease of use, will greatly assist in executing on the implementation plan described here.

Because of the unique nature of this work and structure of the contracts required to support it, the contractual framework for such agreements might also be considered a valuable 'infrastructural element' for implementation.  <u>The terms and conditions of such contracts</u> have evolved over several years to better

support this work; some with pricing models based on FTEs and overhead costs, some on a PMPM basis, and others using a 'hybrid' PMPM plus gain share methodology.  The scope of services and each party's expectations and accountabilities has also been refined in such agreements.

**Players Affecting the Change Including Key Stakeholders**

User Systems (Program Adopters)

Based on the results of this study and the innovative nature and organizational commitment required to implement HQP's model of *advanced preventive care* relatively few organizations are likely to be ready to adopt this model of care – perhaps 2% to 6% of hospital organizations (perhaps 8%+ if HQP brought the funding required through a third-party).  See the Discussion section for the rationale behind this crude working estimate.  With 3,183 community hospitals in the United States belonging to a health system[15] those percentages work out to an estimated count of 64 to 191 hospital organizations that are likely to be strongly interested in collaborating with HQP to adopt *advanced preventive care*.  Applying the same estimated uptake percentages to the 1,619 hospitals in a network in the U.S.[9] yields 32 to 97 solid prospects for collaborating with HQP.  Though these numbers are relatively small as a potential "customer base", given HQP's corporate structure and mission, the fact that HQP doesn't need (nor could it accommodate) more than 3 or 4 such projects of this type at one time, and that the goal is to credibly demonstrate proof of successful model replication with preserved (or enhanced) effectiveness, these estimates suggest that it is plausible that HQP could find a sufficient number of committed organizations to pursue this plan.  This is especially true if one considers that other types of health care organizations that might want to use HQP's model of *advanced preventive care* did not participate in this study – for example, health insurance plans and ACOs.  There are currently 444 ACOs in the U.S. according to the Center for Medicare and Medicaid Innovation website.[16]  It is likely that at least a small minority of ACOs and health insurers would also be interested in adopting HQP's model of *advanced preventive care* (HQP having already provided services under contract to one ACO and one health plan).  The numbers of

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[15] From American Hospital Association, Fast Facts 2016, http://www.aha.org/research/rc/stat-studies/fast-facts.shtml

[16] Related web pages and links accessible from https://innovation.cms.gov/initiatives/aco/

serious inquiries and negotiations that HQP has recently concluded or is currently engaged in with health systems, ACO's, and Medicare Advantage plans, offers further assurance that there is sufficient demand for HQP's model to be able to launch a few collaborative partnerships to assess the feasibility of using these to test a *resource system*-facilitated approach to dissemination.

Another group of stakeholders and potential program adopters HQP has not yet worked with are public health organizations at the federal, state, or local levels.  At the federal level this would more likely involve educational offerings, campaigns, or information sharing and possibly support for research assessing the impacts of *advanced preventive care* on population health and health disparities.  At the state and local levels there is a greater opportunity to potentially partner with public health departments capable of directly delivering *advanced preventive care* or partnering with other health care delivery organizations to do so – especially in the service of vulnerable populations identified by public health units.  In states in which the department of health has an active role in shaping health policy, collaborations have the potential to influence policy to encourage the adoption and broader testing of effective models of *advanced preventive care*.  Such was the case when HQP had the privilege to serve as the lead consultant on behalf of the Maryland Department of Health and Mental Hygiene in 2013 in support of a federally funded (CMS) state innovation planning grant.

Identifying the minority of organizations that are early adopters and most likely to be interested in advanced preventive care has not been easy, especially absent a marketing function within HQP.  To date, the CEO and Medical Director at HQP has been primarily responsible for identifying and connecting with prospect organizations largely as the results of conference presentations, word of mouth referrals, inquiries prompted by journal publications, and HQP's web presence.


Tentative Timeline of New Program Engagements

Given the typically long and unpredictable lead times required to identify collaborative partners and negotiate final agreements, the timeline for this implementation plan is unavoidably imprecise.  Broadly speaking, the goal is to engage three partners in the *replication consultancy* model; one by 1/1/2017, a second by 7/1/2017, and a third by 1/1/2018.  Each of these engagements is tentatively envisioned to last 3 years and every effort will be made to incorporate a robust evaluation of the impact of model adoption

and implementation in each of these new settings – made easier through data capture and analytics available using SPERO®.  It is anticipated that these evaluations will support broader dissemination efforts (to the degree this set of replications is successful) or identify ways to redesign the replication consultancy partnership model to be more effective, or (most likely) a partial mix of both of these outcomes.  Should alternative opportunities arise, one or more of these intended *replication consultancy* projects could be substituted with; a *regional cooperative* implementation, expansion of an existing partnership contract, or other emerging opportunities.

Candidate Target Populations

There is no shortage of Medicare beneficiaries who could benefit from HQP's model of *advanced preventive care* and who could contribute to generating a positive return on investment (ROI) - provided that reducing net total health care cost is a prerequisite for a positive ROI.  One estimate of this, based on the findings from the Medicare Coordinated Care Demonstration is that approximately 18.4% of all fee-for-service Medicare beneficiaries would benefit from HQP's model of *advanced preventive care* and provide a net savings to Medicare.[17]  According to CMS data[18] there were 55.5 million Medicare beneficiaries in the U.S. in 2015 (both Original Medicare and Medicare Advantage members).  Eighteen percent of this population represents approximately 10 million beneficiaries nationwide that would be expected to benefit from *advanced preventive care*.  When targeting this higher-risk population by geographic region, there is typically an ample concentration of eligible beneficiaries to support efficient deployment of resources for *advanced preventive care* in an area.  However, this might not be the case in some sparsely populated rural areas or when the target population is further subdivided on the basis of other criteria, for example by particular insurance plan (in the case of Medicare Advantage).  In such

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[17] Based on unpublished analyses of MCCD data done under contract by Mathematica Policy Research, Inc. on behalf of the Medicare Chronic Care Practice Research Network (MCCPRN) and presented to MCCPRN stakeholder organizations February 2008.  The defined higher-risk group consisted of beneficiaries having (HF, CAD, or COPD and 1 or more hospitalizations in the prior year) OR (2 or more hospitalizations in the prior 2 years regardless of diagnoses).

[18] Available through Henry J. Kaiser Family Foundation at http://kff.org/medicare/state-indicator/total-medicare-beneficiaries/#graph

cases, HQP has found mapping the distribution of home residence of target populations a useful means to assess the feasibility of program deployment in a given region for a given target subpopulation.

Other vulnerable populations are also likely to benefit from models of *advanced preventive care* designed specifically to meet the multi-dimensional health risks prevalent in those populations, for example, younger Medicaid populations with high cost, frequent health care utilization, and poor health outcomes.  HQP will seek opportunities to apply its knowledge of and capabilities in program design and implementation to partner with organizations caring for such populations in order to help create or improve existing preventive care models for those vulnerable populations.


Decision-makers

To date, decision-making at the HQP organizational level has been relatively nimble and adaptive and generally does not pose a significant barrier to moving forward with this implementation plan.  The complexity of decision-making within potential adopting organizations varies widely – from being relatively straightforward with a single primary decision-maker to a complex array of decision-makers which some organizations coordinate fluidly and others barely at all.  For health systems, typically the CEO will have final approval responsibility for an engagement with the size, duration, and scope typical of *advanced preventive care*.  For health plans, a regional business unit head typically is the decision-maker.

In HQP's experience, the lead time from initial discussion to final contract has varied from 4 months to 2.5 years with most in the 4- to 6-month range.  HQP has adopted a standard approach of first providing organizations interested in collaborating with HQP a "concept proposal" and then a non-binding "terms and conditions" sheet prior to committing legal and senior team resources to drafting a binding contract.  Roughly half of all organizations provided a "concept proposal" do not ultimately engage HQP. Given the unpredictability of concluding a final agreement in any given time period, HQP often simultaneously negotiates more potential agreements than projects it can support in order to ensure that one or two come to fruition in time to sustain stable revenues and work.

Similarly, once a project is underway, early contract termination can occur unpredictably.  In the case of the two most recent terminations, these were not because the model failed to perform well, financially or operationally, or because there was dissatisfaction with the service provided by HQP.  In both cases, it

appears that a "corporate" decision above the level of the implementing unit was made to change strategy, programs, or vendors. Shortened engagements are disruptive to proving the effectiveness and replicability of models and to the operational and financial stability of HQP. Increasingly, HQP is attempting to develop contracts requiring a longer-term engagement (for example, three to five years) that include early withdrawal penalties.

**Contextual Parameters**

As noted in the overview at the start of this chapter, two streams of development are needed to achieve widespread use of effective models of *advanced preventive care*; 1) the design, testing, and validation of *advanced preventive care* delivery models, and 2) the design, testing, and validation of models for disseminating these care innovations. These two streams of work are unique, but interdependent, and can inform one another if conceptualized as parallel development tracks. HQP is firmly committed to advancing applied R&D to both these streams of development. Though ambitious, such a 'dual-aim' may be necessary to fulfill HQP's mission and to sustain its funding, provided that helping others adopt *advanced preventive care* provides a revenue stream to support HQP's ongoing R&D. The contextual parameters relevant to HQP's continued efforts to advance both these streams of work are considered.

<u>U.S. Domestic Policy</u>

In the current context of U.S. health care, policy-makers and payers are demanding greater accountability for the quality and cost of care. This has spawned an explosion of entrepreneurial activity with many new products and services (mostly software and analytics) geared toward population health, care coordination, and care management being offered in the marketplace. Meanwhile, the amount and quality of research directed toward creating more effective models and systems of care has in many ways lagged behind. It would appear that the prevailing assumption is that if health care systems are subjected to increasingly strong financial incentives to move from "volume to value" that they will find both the motivation and the wherewithal (resources, knowledge, skills, and practical know how) to conduct whatever R&D is necessary to successfully redesign the system of care.

To date, the principal approach CMS has taken to support care delivery innovation (distinct from payment reforms) has been to promote the discovery of new models of care that can reduce health care costs while sustaining or improving quality by providing nearly $900 million dollars in funding through the CMMI-sponsored Health Care Innovations Award (HCIA) program.  Through this program, CMS competitively selected and funded three-year evaluations of 146 projects (107 in round one and 39 in round two) from around the country that health care organizations proposed to CMS.  The first (and to date only) program evaluated in the HCIA that has been certified by the Medicare actuary as cost-savings to Medicare is a lifestyle intervention program to prevent diabetes among individuals with pre-diabetes.[19] The overall value of the HCIA program with regard to identifying and promoting more effective models of care delivery will probably not be evident for several more years.  In partnership with another health care organization, HQP submitted one of the nearly 3,000 applications to the HCIA program that was not funded in round one.

The impetus to drive change through financial incentives comes from many sources, most notably the federal government policymakers at CMS utilizing a variety of initiatives that include; hospital (as well as skilled nursing and home health) value-based purchasing[20], hospital readmission reduction program[21], bundled payment programs (BPCI[22] and CJR[23]), accountable care organizations[24] (Pioneer, Medicare Shared Savings Program, Advanced Payment ACO, Next Generation ACO), and the merit-based

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[19] It is interesting to note that a preventive lifestyle intervention of this kind could as easily, and for some, more appropriately, be thought of as a public health as opposed to a health care service.  The fact that it is being considered for authorization as a billable service within the fee-for-service Medicare program raises some interesting questions regarding the jurisdiction and influence between U.S. federal agencies responsible for health care financing and public health.  Does this suggest that public health policy in the U.S. will increasingly be defined by CMS?

[20] https://www.cms.gov/Medicare/Quality-initiatives-patient-assessment-instruments/hospital-value-based-purchasing/index.html

[21] https://www.cms.gov/medicare/medicare-fee-for-service-payment/acuteinpatientpps/readmissions-reduction-program.html

[22] https://innovation.cms.gov/initiatives/bundled-payments/

[23] https://innovation.cms.gov/initiatives/cjr

[24] https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ACO/

incite payment system[25].  In January 2015, the Secretary of Health and Human Services, Sylvia

Burwell, announced the agency's goal to have 50% of all payments for Original (fee-for-service) Medicare

to be made through Alternative Payment Models by the end of 2018 and 90% of all payments tied to

quality or value in that same time frame.  The expectation is that the incentives in the Medicare Access

and CHIP Reauthorization Act of 2015 (MACRA), which repealed the Sustainable Growth Rate (SGR)

formula, will further augment the achievement of these goals by providing strong economic incentives for

physicians to participate in eligible Alternative Payment Models.

In many cases, non-governmental health insurers have adopted similar, or complementary incentive

programs.  Such policy initiatives have been essential in motivating health care organizations to consider

adopting more care coordination, care management, population health management, and preventive care

strategies in order to optimize the related array of financial penalties and incentives.

U.S. Health Care Marketplace

There has been considerable consolidation in the provider, insurance, consulting and management

sectors intended to enlarge the number of "lives" under care or insurance coverage.  The impetus to get

bigger has been fueled by the shift toward population-based payment models.  There are now 444 CMS-

sponsored Accountable Care Organizations in the U.S.  Most of these are newly developed and are still

struggling to implement infrastructures and systems to support the population health and care

management interventions that are believed to be necessary to succeed over the long run in such

payment models.  Most have not yet begun to transition to assuming financial risk for the overall cost of

care to the populations they have enrolled.  For some policy makers the current status is seen as a

transitional state along an evolutionary path from traditional fee-for-service payment to full capitated risk.

Along with the rise of the ACO model has come increasing discussion among health systems

regarding the strategic value of implementing their own health insurance offerings.  In some cases, health

insurance companies are exploring creative ways to partner with health systems to provide such

offerings.  This volatile marketplace environment has fueled the growth of health care consulting and IT

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[25] https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/MACRA-MIPS-and-APMs.html

services, and various types of multi-provider convener and management service organizations.   Most of these services focus more on the business (strategic and transactional) requirements of new payment models and seizing marketplace opportunities than on care delivery models, though they may acknowledge the importance of or provide limited care coordination.  Notwithstanding the overlap with some of these services, HQP has a distinct history, experience, evidence-base, and comprehensive approach to *advanced preventive care* that helps to distinguish and differentiate it from other offerings in the marketplace.

The complexity of the marketplace can even make utilizing incentives challenging.  For example, allocating shared savings resulting when a reduction in cost can be achieved has become increasingly complex with multiple parties often seeking to be identified as contributing to such savings.  Questions about who gets credit for savings and how rewards are shared grow more complex as the number of players interacting in novel new organizational or financial arrangements increases.

Market forces have also stoked the proliferation of and competition among health care quality, management, and IT *knowledge purveyors*.  In this study, some informants were very satisfied with and clearly favored receiving support for adopting innovations from well-known *knowledge purveyors*.   These informants seemed unconvinced that the experience and expertise of a *resource system* was necessary or more valuable than the advice of *knowledge purveyors*, which were often seen as easier to access and more cost effective.  It seems unlikely that organizations with a strong preference for working with *knowledge purveyors* would be persuaded to invest more time, money, and commitment to a developer-supported method of adoption and implementation.   These would not be considered good prospects for HQP to target for possible collaboration.

It has been HQP's experience that organizations interested in investing resources for care delivery redesign most often have tried less intensive approaches to care coordination or population health management and found them to be inadequate.  There appears to be an organizational learning curve that obliges many organizations to try out lower cost, less intensive and complex interventions before they are prepared to consider more robust models like *advanced preventive care*.

The need to find more effective care delivery models for aging populations with multiple chronic conditions is not unique to the U.S.  To date, HQP's presentation of its model of *advanced preventive care* to a limited set of international audiences has been well received.  Discussion is currently underway with one non-profit secondary health plan in Australia that is considering introducing HQP's model of *advanced preventive care* in that country.  It could help to develop opportunities for HQP by finding the means to establish more collaborations with organizations and governmental policy makers outside the U.S.

**Actions to be Taken by Health Quality Partners**

Develop a Portfolio of Collaborative Partnership Models

With the addition of the *replication consultancy* model HQP now has two defined collaborative partnerships models with which it has operational experience and a proven business and contractual framework; *direct service partnership* and *replication consultancy*.  The next collaborative partnership model HQP would like to add to its growing portfolio is the *regional cooperative*, though doing so will take the existence of a use case that combines multiple health care systems willing to cooperate with one another in a given region and a funding stream and business model that could conceivably sustain such work.  These circumstances seem increasingly likely where multiple small regional providers organize to form Clinically Integrated Networks (CIN) and ACOs in order to respond to changing health care market forces and pursue emerging alternative payment mechanisms.  In this context it is entirely possible that the two models of *replication consultancy* and *regional cooperative* will overlap or both be applicable in some circumstances.

The *franchise model* has an appeal and might be both a viable business model and a useful mechanism for disseminating *advanced preventive care*, but requires considerable business strategy, legal development, capital investment, and marketing; none of which are assets that HQP has or wishes to develop at the expense of its core mission.  There is also a greater business risk associated with this model.  As such, the *franchise* model would be more suitable if HQP was working in partnership with one or more corporate entities interested in developing such a model.  Even if this was the case, there is a

risk of HQP's work being redirected from its core mission of undertaking applied R&D to growing a business venture.

Develop *Replication Consultancy* as primary means of dissemination

At the time the study interviews were conducted, HQP had not tried to implement a project using *replication consultancy* and had not begun to develop a set of criteria for such a model.  While the *replication consultancy* model was not explicitly probed in this study, nearly all of the study participants with a high (n=7) or moderate (n=5) likelihood of engaging in collaboration with a *resource system* expressed their interest in some level of consultation from the "experts" (program developers).  A key parameter, not quantified in this study, is how much service they would agree to in terms of intensity, duration, and scope.

As key informant interviews were being transcribed, reviewed, and preliminary analysis performed in 2014, a new form of collaborative partnership began to come into focus.  In the course of discussions in late 2014 with organizations expressing interest in adopting HQP's model, the details of the scope of services, duration, and legal terms for *replication consultancy* were defined.  Beginning in January 2015, the first use of this model enabled HQP to assist an ACO in Pennsylvania, comprised of 3 separate organizations, and responsible for 33,000 beneficiaries in the Medicare Shared Savings Program (MSSP) to begin to implement HQP's model of *advanced preventive care*.  The work included HQP supporting the ACO's selection, training, and mentoring of nurse care managers and senior management.  Data analytics for population targeting and outreach, and an IT platform (SPERO®) designed by HQP for supporting teams to undertake and manage day-to-day implementation of the model was also provided to the ACO.  The experience from this first attempt to utilize the *replication consultancy* model confirmed its utility and feasibility.

The model seems especially well-suited in cases where HQP is not bringing the funding for program implementation and local staff implementing the program are directly and solely employed and managed by the adopting/implementing organization.  HQP is now in discussions with other organizations interested in receiving the same kind of collaborative partnership support.  The model establishes a framework of rigor, intensity, and sustained commitment that HQP's program developers believe is

essential, while providing an opportunity for customization of the implementation plan to support a range of client preferences and needs.

**SPECIFIC ACTION STEPS (in 2016):**

**HQP will seek to execute a new contract with at least one organization to implement HQP's model of advanced preventive care using the *replication consultancy* model.**[26]

**HQP will propose to a major health insurance company a pilot test of replication to serve higher risk Medicare Advantage members in areas beyond southeast Pennsylvania using the *replication consultancy* model.**

Continue using *Direct Service Partnership* for local service

Of the 7 participants most likely to partner with the developer, 6 (86%) indicated that they were able and willing to support the elements of the *direct service partnership* model. This model has been used successfully for many years to support delivery of *advanced preventive care* by HQP in southeast Pennsylvania.

HQP has been able to provide *advanced preventive care* to; 1) selected higher risk Medicare Advantage members in 6 counties of southeastern PA (now in year 7), 2) beneficiaries previously participating in the MCCD (4/2002 thru 12/2014), and 3) heart failure patients previously participating in a Model 2 version of CMS' Bundled Payment for Care Improvement (BPCI) (1/2014 thru 12/2015). These projects were made possible by HQP collaboratively partnering with regional hospital-based health systems using the *direct service partnership* model. In this collaborative partnership model, partnering health systems provide HQP with HR support, including recruiting and hiring staff which are then leased back to HQP, data related to hospital discharges and diagnosis codes, and introductions to system-affiliated primary care and specialty practices.

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[26] HQP is currently in contract negotiations with a large out-of-state (non-Pennsylvania) medical group that also has a Medicare Advantage plan interested in utilizing replication consultancy to implement *advanced preventive care* for their Medicare Advantage members.

In March 2016, HQP began serving a hospital-based health system under a 5-year agreement to provide a range of services including; system redesign to establish care management across the continuum of care, analytical and consultative services, and a nursing team to deliver HQP's *advanced preventive care* to help transform the organization into one with a robust population health management capability.  The *advanced preventive care* component of this engagement is being implemented by HQP through a *direct service partnership*.

Though there are several benefits to the *direct service partnership* model used by HQP, there are significant limitations, in its current format – most notably the need for management and supervisory staff at HQP to be geographically accessible to implementation regions in order to directly manage the program on a day-to-day basis.  To date, HQP leadership has been reluctant to attempt the level of management oversight, staff training, development, and mentorship the model requires by remote distance telecommunications methods alone.  Applying this approach at greater distances will require innovation by HQP with respect to providing senior management support through more 'virtual' web and teleconferencing and/or by temporarily posting senior nurse care management staff on-site in the early stages of program implementation.  The model is also most readily adopted when program funding flows through HQP.

For these reasons, despite the fact that several study participants indicated they would be able and willing to provide the three elements required by HQP to implement a direct service partnership (HR support and employee lease-backs, data, and introductions to primary care providers), this model is probably less feasible for HQP to use for dissemination than the *replication consultancy* model.

**SPECIFIC ACTION STEPS:**

**HQP will continue to use the *direct service partnership* model to deliver services in its primary service area of southeast Pennsylvania.**

**HQP will utilize the *direct service partnership* model for dissemination only as a secondary alternative to *replication consultancy* if specific circumstances warrant and appropriate adaptation could be made.**

<u>Develop an IT Platform (SPERO®) to Support Dissemination</u>

Though not the primary focus of this research, a full implementation plan must include the development of an information technology tool that can help guide and support organizations wishing to adopt and assimilate HQP's model of *advanced preventive cares*. For the past two years, HQP has been developing its third-generation application to support implementation of *advanced preventive care* in collaboration with an IT software development firm. Version 2.1 was released June 2016. It is capable of supporting scalable dissemination and would be included as part of the full offering made available to adopting organizations through a *replication consultancy* engagement. Because *advanced preventive care* involves much more than merely learning a suite of IT applications, HQP's current plan, is to make SPERO® available only to organizations engaging HQP through *replication consultancy*.

**SPECIFIC ACTION STEPS:**

**HQP will use SPERO® for its own delivery of advanced preventive care and to support all new *replication consultancy* partnerships.**

**SPERO® will not be offered as a <u>stand-alone software product</u> at this time, but might be after proof of successful model replication in one or more sites has been confirmed.**

<u>Enhance Research Partnerships</u>

For the past few years, HQP has cultivated a collaborative partnership with the team of researchers at the NewCourtland Center for Transitions and Health at the University of Pennsylvania, directed by Mary Naylor, PhD, FAAN, RN who is also member of the Board of Directors at HQP. As a result of this collaborative research, joint publications are expected on several key elements of *advanced preventive care*, including; advanced planning and end of life care, participant engagement, and assessing risk factors and determinants of health. The first article published as a result of this partnership focused on the relationship between the pattern of nurse care manager contacts and sustained participant engagement (Toles et al. 2015).

The research emerging from this partnership has several benefits including; improving the knowledge base related to *advanced preventive care*, helping to market HQP's work (at least for in some circles), and helping to influence policy and achieve sustainability by demonstrating credible evidence of effectiveness.

**SPECIFIC ACTION STEPS:**

**HQP will continue to work with the research team at the University of Pennsylvania to complete research projects underway and to proactively identify new research opportunities related to upcoming dissemination projects (e.g. replication consultancy) undertaken by HQP.**

**HQP remains open to research collaborations with other academic teams in nursing, health services research, public health, system analysis, and health economics.**

Establish opportunity development partnerships

HQP was recently invited by the Camden Coalition of Healthcare Providers (CCHP), located in Camden, NJ and led by its Executive Director, Dr. Jeffrey Brenner, to consider how it might participate in helping CCHP develop a National Center for innovating and disseminating models of care for vulnerable, complex populations.  Several foundations interested in developing such a center are reported to have committed $8.7 million in funding.  Discussions are currently underway between the leadership of CCHP and HQP to explore areas of overlap between the emerging goals of the National Center and those of HQP as outlined in this implementation plan.  Collaboration of this type could help HQP garner additional support for elements of the implementation plan described here and further the mission of the National Center.

**SPECIFIC ACTION STEPS:**

**HQP will explore the possibilities of participating in and supporting the National Center being developed by the CCHP.  HQP will also seek to participate in or, as appropriate, lead projects sponsored by the National Center.**

**HQP will continue to seek collaborative partnerships or organizational affiliations that can further its mission and has the potential to advance this implementation plan.**

**CHAPTER 6 – DISCUSSION**

**Limitations**

There are many potential limitations, biases, and errors to consider in attempting to categorize a study participants' overall willingness to engage in collaborating with developers of a program of *advanced preventive care* as presented in this study. These include, but are not limited to; 1) intentional suspension of concerns related to financial requirements for implementation, 2) participant recognition of interviewer and exemplar program developer as one and the same (interviewer not a disinterested party), 3) error in the researcher's basic characterization of participant responses to specific individual questions and overall likelihood to collaborate with the program developer, and 4) the subjectivity of the researcher's judgment in assigning an overall likelihood of interest in adopting one or more collaborative partnership model to work with the program developer based on the pattern of informant responses across all questions.

In some cases, the strength and/or nature of the affinity or rejection of certain models by respondents was relatively clear cut and straightforward as was their overall enthusiasm or skepticism about collaborating with program innovators. In any case, this kind of "reading" of another person's interest level or intention is a process that goes on daily in exploring the potential for collaboration so it is, in a sense, the very imperfect human process upon which most real world collaborative relationships are built (or not). To the extent the researcher has participated in many partnership explorations over his career; many of which have succeeded and considerably more that have failed, he is likely to be no less and perhaps somewhat more qualified to make such assessments than less experienced individuals.

The fact that these respondents were highly self-selected, introduces a systemic bias that frames this entire set of results, which should not be presumed to represent the general thinking of health care executives from these organizations broadly across the U.S. Given the framing of the research provided in the invitation letter, it is much more likely that those agreeing to participate in this study already view

this topic as important and worthy of their limited time and attention. It would not therefore, be unreasonable to hypothesize that, as a group, these informants are better informed about and supportive of championing models of care coordination, care management, and population health management.

It is impossible to control for the recognition by many participants that the interviewer was an invested and not disinterested party. This could have led to an overly positive response by participants. Consideration in the planning phase of the research was given to hiring a neutral third-party to conduct the interviews, but cost, logistics, and the learning opportunity afforded to the investigator by conducting the interviews was determined to be the more important set of considerations. It is noteworthy, however, that even with whatever global bias toward greater participant positivity this may have created, many participants did nonetheless, express keen differences in their preference for specific collaborative partnership models. Hence, it is likely that in spite of this global bias, useful information was garnered.

**Leading with Exemplary R&D to Propel *Advanced Preventive Care***

The Implementation Plan is premised on the belief that additional evidence of real-world effectiveness of *advanced preventive care* and the demonstration that it can be disseminated will compel changes in health policy, health care financing, and market forces that will enable broader dissemination of this and like models of *advanced preventive care* to a degree that will ultimately improve the public health. An alternative plan, by which HQP would seek to maximally leverage the existing evidence-base demonstrating the effectiveness of the HQP model and prioritize business development to offer products and services currently in demand in the marketplace in order to optimize revenues was rejected on the grounds that it is less aligned with the mission of the organization and values of its staff, would diminish HQP's distinctive "brand" and identity that differentiates it from many others in the marketplace, and would diminish participating in the significant applied research still needed in this field to advance it further.

The plan also depends on its execution being feasible – that there are sufficient practical opportunities to demonstrate dissemination with sustained effectiveness for there to be a chance for it to work. While plausible, this road is long and the challenges daunting, especially for a relatively small organization with limited funding. Fortunately, HQP and other organizations like it can gain strength and

capacity through partnerships and can take advantage of a well formed vision, a deep commitment to mission, and constancy to purpose.  These attributes are likely essential for developing new, more demanding, but more effective models of preventive care – especially if they are unlikely to be financially profitable in the short term.

The full potential for achieving the possibilities described will also depend, as the evidence grows, on political advocacy and public awareness through news and other media outlets.  HQP has past experience with both; having mobilized support from the Pennsylvania Congressional delegation and other members of the U.S. Congress to extend the MCCD, and having collaborated with journalists to provide excellent coverage of HQP's accomplishments and care model through easy to understand stories (Klein 2013).

Crude estimation of HQP's opportunities to execute the Implementation Plan

Of the seven most likely collaborators, all are hospital organizations; five are hospital-based health systems and two are small rural hospitals.  If one focuses only on hospitals organizations, then these 7 came from a pool of 12 such organizations participating in the study yielding a crude point estimate for collaboration among hospital organizations of 7/12 = 58% (with a 95% confidence interval lower limit of 30%).  The current study was not designed to accurately measure this rate, but as a 'thought experiment' for strategic planning and feasibility assessment purposes further extrapolation is useful.

The crude point estimate of 58% of hospital organizations collaborating with a HQP-like resource system under the conditions of the study, significantly over-estimates the percent of hospital organizations nationally likely to engage in collaboration with exemplar program innovators for at least three major reasons.  First, knowing or suspecting that the interviewer was the lead developer of the program being discussed, informants are more likely to have been positive about developer-user collaborative partnerships and the exemplar program during the interview out of social politeness and courtesy.  Second, even if the sentiments and opinions of informants were honest that still is no guarantee that they would, in fact, act in accordance with their answers.  Third, the interview approach did not consider any financial constraints exist in any actual implementation and would further reduce the number of interested organizations able to pursue such an initiative.  And finally, as previously described,

the self-selected set of informants participating in this study are more likely to be "early adopters" of innovation than would members of a random sample of U.S. health care organizations.

Applying the very general and arguably debatable rough estimate that 13.5% of all organizations in any industrial sector have attributes of early adopters (Rogers 2003, 281), one can "adjust" the collaboration rate for hospital organizations derived from this study to estimate the general rate among all hospital organizations. Multiplying the current study estimate for hospital collaboration by the fraction of organizations believed to be early adopters yields a very rough approximation of 58% (CI95: 30%, 86%) x 13.5% = 8% (range of 4-12%) of all hospital-based organizations in the U.S. being likely to collaborate with HQP to adopt advanced preventive care for chronically ill older adults (less whatever number of organizations believe they have already adopted an equivalent model, which, based on interviews in this study, is likely to be a small percentage). But even this estimate may be too optimistic for real-world utility, because it ignores the financial impacts and costs that must be considered for actual collaboration and program implementation.

Since this study did not include considerations of how or to what extent user systems can finance the adoption of advanced preventive care programs or support collaborative relationships such challenges must be considered in developing an actual implementation plan for diffusing this model of care. Similarly, the study did not assess the extent to which marketplace competitors (with or without evidence-based programs) vying for this same business with health systems might erode opportunities for collaborative partnerships between organizations like HQP and user systems. Based on these other factors, it might be prudent to cut the earlier estimate in half – to say 2% to 6%. As a rough, working rule of thumb, HQP will apply this estimated range for modeling the potential number of hospital organizations (2-6%) interested in engaging in a collaborative partnership with HQP to help them adopt, implement, and assimilate *advanced preventive care*.

Another practical way to think about this challenge is to assume that *if HQP can fully finance the project itself* (for example through grants, demonstrations, or third-party payers or investors) *or a health system already has a compelling business case for a return on investment (ROI)* – the likely uptake rate of collaborative partnering with hospital-based organizations might well be closer to 8%. This equates to roughly one out of every 12-13 health systems/hospitals.

With current health care payment and insurance reforms underway, the likelihood that hospital organizations will have or will become part of a larger network of organizations that will have a compelling business case for implementing effective advanced preventive care is increasing. Even if HQP cannot bring full funding on its own, the *advanced preventive care* program will likely become more attractive to health systems and hospitals as payers increasingly push these organizations toward more population and value-based payment models, including various types of risk-contracting. For example, while most study participants were not involved in risk contracts at the time of their interview, 10 of 16 (63%) anticipated exploring or implementing these kinds of payment models in the near future. These forces would be expected to increase the ROI and downstream cost offset for *advanced preventive care* programs from the health systems' perspective. HQP has observed this to be true as reflected by a greater number of inquiries it has received from health systems, hospitals, and clinically integrated networks participating in ACOs in the past two years.

From the perspective of many growth-driven organizations seeking to increase revenues, this relatively small customer segment of early adopters may lack the critical mass needed to achieve certain business objectives. *From the perspective of a small, non-profit resource system with a mission of undertaking applied R&D to advance better models of health care for vulnerable populations, the relatively small number of potential adoption partners is not a problem, provided they can be identified, contacted, and engaged.*

Policy Implications

Presumably as evidence of program effectiveness and the feasibility of dissemination is strengthened and becomes more widely appreciated, policy makers will want to develop new standards and incentives for health care organizations to adopt and utilize such models broadly. For this new category of intervention, given that the effectiveness of program heavily depends on the quality and reliability of its implementation, it may be especially challenging for policymakers to design policies, regulations, and billable services to ensure that the benefits of *advanced preventive care* are realized. To support these models to be effective on a large scale, policymakers may need to either; a) be very prescriptive in regulations setting out implementation standards and requirements, b) develop payment

models that strongly reward measurably improving health on a population basis (thus incenting health systems to voluntarily implement proven models with high fidelity, in order to achieve program effectiveness), or c) both.

New, sustained funding to promote the development of more *resource systems* to undertake the rigorous and long-term R&D required to innovate better models of *advanced preventive care* would be a much-needed complement to the short-term strategies to promote care delivery innovations used to date by the Center for Medicare and Medicaid Innovation.  Policymakers could help ensure that two main constituent groups are well-served by funded innovation efforts; 1) Vulnerable populations including complex, chronically ill older adults who need better models of care, and 2) groups vital to future innovations that have not, historically always had a seat at the table re: health system design, research, and diffusion, including health care providers across multiple disciplines (nursing, pharmacy, PT, OT, behavioral health, etc.), community and social service providers, local government, and public health agencies.  Incentives for current power-holders in health care (e.g., physicians, hospitals, Pharma, insurance, etc.) must be realigned to reward them for supporting, participating, and assisting multi-stakeholder applied R&D groups to be effective and build momentum in the discovery of knowledge needed to further this work.

Research Implications

Research addressing the dissemination of health care delivery model innovation, preventive care models, and system design could blossom by having a disciplined framework within which various models of collaborative partnerships are designed and tested.  A significant amount of research is still needed to continue to hone *advanced preventive care* models for different populations.  System design as a field within health services research has been under-utilized, but may be crucial for the further development of multi- and cross- discipline models for population health management and could be promoted in this approach.

Sustained funding for a new type of research organization that effectively, and with a high degree of fidelity, implements new models of care to test and evaluate on a larger scale is crucial.  What's needed are initial trials to demonstrate model effectiveness, with larger expanded trials involving more regions,

settings, and populations to learn about model replication and dissemination as well as to validate results of initial trials.  Performance evaluations and continued funding of such research organizations must primarily focus on how well they execute on implementing the model tested rather than on whether it "worked" or not in achieving desired population health outcomes.  If a given preventive care model being tested doesn't improve health outcomes, but it was executed exactly as designed and intended, then the model is likely ineffective and needs to be redesigned.  Whereas, if a given preventive care model fails to improve health outcomes, but its implementation was poorly executed and not as designed and intended, it becomes impossible to assess whether the program, its implementation, or both were flawed.

Public Health Implications

If schema like the one proposed here describing attributes of a model of *advanced preventive care* prove useful in developing better systems of preventive care for vulnerable populations and mechanisms to effectively disseminate such models are discovered and used widely, the opportunity for this line of work to improve the overall health of higher-risk populations with chronic disease in the U.S. and globally may be significant.  Though such a grand vision may seem very optimistic, glimpses of solid evidence exist that support its plausibility.  Whether the many current and future barriers can be overcome to ultimately achieve the desired outcome remains to be seen, but the justification for undertaking the quest is solid.

A separate question concerns the future role of public health in the U.S. and globally as it relates to designing, implementing, monitoring, researching, or improving new models of prevention and systems of management for chronic diseases.  While primary prevention has long been recognized as a core domain for public health, secondary, tertiary, and even quaternary prevention for populations with established chronic conditions and frailty due to aging have, at best, been incompletely addressed by the traditional public health and medical establishments.  Should leaders of public health focus primarily on defending and bolstering traditional public health functions and not be distracted by the population health management buzz among health systems that are increasingly merging, growing larger, and beginning to develop capabilities in this area to succeed under new payment models?  Would doing so cause public health to be left on the sidelines leaving the health care industrial complex to monopolize new services

related to models like *advanced preventive care* that could just as easily and perhaps more effectively, equitably, and inexpensively be provided by or delivered in partnership with public health units?  Should public health departments seek to serve as or contribute to the new additions of "population health" or "community health" divisions of health systems?  How do the two connect in the future?

Early in the planning of this study, consideration was given to including leaders of public health departments as key informants.  In the opinion of this investigator, that research is still very much needed. In HQP's limited experience exploring the possibility of assisting a county department of health to implement *advanced preventive care,* the budgetary constraints of the department were prohibitive, though they were perfectly poised with qualified staff, strong leadership, and support of the regional health system.  If HQP can find ways to reduce the cost of supporting *regional consultancy* and health departments had more funds to implement such models, it could become feasible to use HQP-public health collaborative partnerships for model dissemination.

If what we most want and need, as a society, is a comprehensive system safeguarding the health of our communities then perhaps we'd best design it together and include: public health practitioners, health care providers, hospital-based health systems, community leaders, social service providers, business leaders, health insurance companies, and others.  Undertaking a grand system design of preventive care involving multiple stakeholders contributing what each is most qualified and best positioned to contribute, with each accountable to a system that is collaboratively implemented and rigorously tested in a defined geographical region or target population might yield the greatest innovation to the public health in the modern era.  To make such an endeavor possible, radical new funding mechanisms might be required, such as allocating monies by means of global budgets for target populations to support all public health, medical care, and social services in a shared and transparent manner.  In this context, the wisdom, skill, and capacity to collaboratively design, implement, and problem-solve on behalf of the greater good, by the leaders involved in such a project would likely determine its outcome.

**APPENDIX A – TABLE OF INTERVENTIONS IN HQP'S ADVANCED PREVENTIVE CARE PROGRAM**

| Intervention | Description | Application | Protocol / Standard |
|---|---|---|---|
| Intake Assessment | Sutter Health Questionnaire (SHQ) - a validated geriatric risk assessment; patient self-report, nurse administered; scored by algorithm and identifies patients at high risk for death, hospitalization, nursing home placement or other adverse events | All participants | Completed following patient consent and prior to randomization; nurse administered based on patient self-report; nurse reviewed for omissions, discrepancies, conflicts |
| Initial Geriatric Assessment | Comprehensive, multidimensional in-home assessment of physical, functional, cognitive, psychological, behavioral, social and environmental needs. Specific tools used to conduct this assessment are described in Methods : Intervention section | All intervention participants who scored 'high risk' on the SHQ | Completed within 30 days of randomization utilizing the structured screening and assessment tools |
| Individualized Plan | Developed initially and updated each encounter based on: the patient's self-identified primary concerns and unmet needs; findings from their initial and ongoing assessments; and the patient's motivational stage of change | All intervention participants | Developed following initial geriatric assessment and during each structured encounter |
| Action Plans | Individualized plan that identifies when the patient is to call the nurse care manager, the physician, and when to call 911 (general and disease specific) | All intervention participants receive a general action plan and condition specific plan(s) as appropriate | Initially within 30 days of randomization and updated and reviewed with the patient on each subsequent encounter |
| Ongoing Assessments and Screenings | Ongoing assessments and screenings utilizing structured tools for the standard encounter and screening for depression, domestic violence, abuse, neglect and preventive care and immunizations. | All intervention participants | Structured assessments completed monthly utilizing the HQP structured encounter; annual screenings and preventive care according to guidelines |
| Medication Reconciliation and Management | The process of identifying and creating an accurate list of the patient's current medications; reconciling errors/omissions with the prescribing physicians; assessment of patient adherence (obtaining and taking medications as prescribed), and assisting in organizing, managing and educating the patient about their medication regimen to support adherence; identify root causes for non-adherence and utilize collaborative problem solving to address barriers | All intervention participants | Medication review and reconciliation on the initial assessment and during each subsequent contact and during care transitions |

| Intervention | Description | Application | Protocol / Standard |
|---|---|---|---|
| Care Transitions | Intensification of assessment, coordination and visits by the nurse care manager when the patient is admitted/discharged from hospital, nursing home and home care; timely assessments and visits with patients to ensure safe and well coordinated care transitions with follow through on instructions, medications, and treatment plans | Intervention participants with a visit to an emergency department or admission to a hospital | Protocol guides coordination with healthcare providers, follow up calls and frequency of visit with patient during the care transition periods |
| Education and Self-Management Training | Comprehensive structured curriculum for disease specific education and self-management training for asthma, cardiovascular diseases, and diabetes – provided one to one or in a small group of participants | Condition specific; based on assessment finding of the patient's knowledge and skills, needs, priorities and risks | Provided for all patients and customized based on disease state, patient needs and priorities with ongoing assessment and tracking through a structured education plan |
| Assessment and counseling for behavior change | The Transtheoretical Model of Behavior Change is used by care managers to continually assess patients' motivational stage for behavior change (lifestyle behaviors, self-management and self-monitoring skills) and supporting patients with appropriate cognitive or behavioral strategies | Assess participants' stage of behavior change and match interventions to their stage of readiness | Assess and provided based on the patients' needs and priorities |
| Nutritional Education and Counseling | Individualized patient education and counseling for low sodium; reduced fat; carbohydrate counting; meal planning, portion control, calories. | Patient and condition specific based on motivational stage and individual need | Assess and provided based on the patients' needs and priorities |
| Physical Activity Education and Counseling | Individual patient education and counseling to adopt a more active lifestyle as well as more formal exercise prescriptions | Patient and condition specific based on motivational stage and individual need | Assess and provided based on the patients' needs and priorities |
| Stress Management Education and Counseling | Assess the factors that are contributing to stress and identify the resources and techniques to manage stress | Patient specific | Assess and provided based on the patients' needs and priorities |
| Quit smoking Education and Counseling | Assess readiness to quit; provide appropriate cognitive or behavior strategies and collaborating with primary care physicians for pharmacological treatment | Participants who smoke | For people who currently smoke, assess readiness to quit at each encounter |
| Advance Directives Education | Identify the presence of current advance directives (durable power of attorney for health care decisions, and living will) and provide patients education regarding their right to self-determination and preferences for choosing a decision maker and to designate their individual preferences for care at the end of life. | All intervention participants | Identify presence and location of patients' advance directives initially and periodically re-assess and review advance directives with patients |

| Intervention | Description | Application | Protocol / Standard |
|---|---|---|---|
| Advanced Care Planning | Anticipation of patients' future care needs and assisting patients and families with planning to meet those needs – treatment, end of life options, living situation, etc. | All intervention participants | Consider advance care planning based on patient age and nature of illnesses and patient specific situation |
| Medical Management with Physicians | Collaboration with physicians to report new or worsening symptoms, abnormal findings, psychosocial issues and recommendations regarding treatment plan and/or routine preventive care | All intervention participants as needs are identified | Care Manager contacts physician by telephone, fax or physician preferred method of contact |
| Psychosocial Needs Assessment & Information and Referral | Assess patients' needs for services, Federal state and county services (pharmaceutical assistance, in home care), non-covered services (DME, meals, private care), service monitoring and follow up, behavioral health services | All intervention participants as needs are identified | Initial and ongoing as needed |
| Coordinating Care | Based on patients' needs collaboration with family, and other health and social service providers to communicate changes in treatment plan, medication management, home environment and safety, monitoring of services and providers involved in the patients care | All intervention participants as needs are identified | Initial and ongoing as needed |
| LEARN® Weight Management Group | A 16 week, structured group program facilitated by care managers, addresses the multiple factors associated with sustainable weight loss | Intervention participants with a BMI > 30 in the 'action' stage of change | Periodic assessment of patients' motivational stage of readiness for weight loss through this behavioral intervention |
| Weight Loss Maintenance Group | A monthly group program that is care manager facilitated and provides ongoing education and support for participants who have lost weight and for weight maintenance. Education and reinforcement on behavioral strategies, nutrition, physical activity and regular weight monitoring | Intervention patients who have completed a weight loss program or who want to keep from gaining weight | Recommend as a follow on to the LEARN Weight Management Program |
| Seated Exercise Group | Weekly group program that is supervised by a care manager and guided by video of seated exercises and stretching as a way for participants to learn and practice daily physical activities | All intervention participants who are functionally able to safely participate | Encourage attendance for participants who are appropriate for participating in seated exercise in a community based group setting |
| Diabetes Conversation Map® | A five week small group interactive workshop, facilitated by care managers for diabetes education, and self-management skill development based on current practice guidelines | Intervention participants with a diagnosis of diabetes | Encourage participation by participants with a diagnosis of diabetes, for support, education, skill development and problem solving related to the multidimensional problem of diabetes |

| Intervention | Description | Application | Protocol / Standard |
|---|---|---|---|
| FallProof™ Groups | An intensive 10 week 18 session group program facilitated by nurses that includes a pre/post program evaluation for balance and mobility assessment and training | Participants with history of falls | Assess incidence of falls each contact; if positive for falls, consider for FallProof™ program, physical therapy or home exercise program |

**APPENDIX B – TABLE OF MANAGEMENT ELEMENTS IN HQP'S ADVANCED PREVENTIVE CARE PROGRAM**

| Management tool | Description | Major Elements included |
|---|---|---|
| Pre-service training | A comprehensive and closely managed six – nine month orientation and training program that involves didactic education, self-learning, participant observation, role play, case review; while building a full patient caseload. | • Initial and ongoing assessments and screenings – risk screenings nutrition; fall, domestic violence, abuse, neglect, exploitation, mental status, cognition, depression, suicide, substance, home safety, medications<br>• Patient engagement<br>• Person centered approach<br>• Visit preparation<br>• Behavior change theory<br>• Motivational interviewing<br>• Evidence-based clinical practice guidelines<br>• Provider communication<br>• Patient goal setting<br>• Patient education curriculum<br>• Action plans<br>• Information systems<br>• Best practices in time management<br>• Patient and caseload reports<br>• Community resources<br>• Group program interventions – LEARN®, Weight loss maintenance, seated exercise, FallProof™, Diabetes Conversation Map® |
| Coaching and supervision | • Following pre-service training; regular and ongoing individual meetings between the supervisor and care manager for caseload monitoring and review.<br>• Weekly team huddles for communication updates, continuing education and nursing development, case and standards review | • Review of all patients with nurses, utilizing quality reports with special focus on complex patients and those recently hospitalized;<br>• Periodic chart reviews to evaluate interventions and documentation;<br>• Structured observation visits to observe pre-visit preparation, nurse-patient interactions, including person-centeredness; assessment, screening interventions, education, goals setting, etc.<br>• CM consultation with nursing leads for advise and support in managing patients with difficult, complex, and safety issues (medical, psychiatric, social environmental);<br>• Regular performance review and feedback |
| Protocols / Guidelines | • Protocols to guide CM processes and interventions;<br>• Evidence-based clinical practice guidelines | • Policies, procedures, and standard operating procedures for<br>    o patient screenings (e.g. depression, abuse, neglect, exploitation), and for positive findings;<br>    o assessments,<br>    o care transitions,<br>    o medication management and reconciliation; |

| Management tool | Description | Major Elements included |
|---|---|---|
| | | o    timing of follow up contacts;<br>o    guidelines for cardiovascular disease, diabetes, chronic lung disease, preventive care, physical activity, weight loss, smoking cessation |
| Performance standards, metrics and reports | Role specific standards of performance reinforced by guidelines, protocols, operating procedures | Evaluated with approximately 200 metrics using a data system with near real time reports, supervisory observation visits and patient surveys and call backs |

## APPENDIX C – LITERATURE SEARCH ALGORITHMS USED
## AND COUNT OF ARTICLES RETURNED

| Search terms | Database | Total references returned | Title/Abstract reviews | Full article reviews | Relevant articles |
|---|---|---|---|---|---|
| General topic of "innovation" and "diffusion" has a very large reference set | | | | | |
| innovation + diffusion | Google Scholar | 728,000 approximate | - | - | - |
| allintitle: innovation + diffusion | Google Scholar | 1,630 | - | - | - |
| Narrowed broad general topic of innovation and diffusion by using title terms only and adding "health" | | | | | |
| allintitle: innovation + diffusion + health | Google Scholar | 35 | 35 | 9 | 1 |
| High specificity focus (title/abstract terms) on "innova**tor**" and "diffusion"/"dissemination" yields very few references | | | | | |
| allintitle: innovator + diffusion | Google | 5 | 5 | 0 | 0 |
| | Google Scholar | 2 | 2 | 0 | 0 |
| allintitle: innovator + dissemination | Google | 0 | - | - | - |
| | Google Scholar | 0 | - | - | - |
| (innovator[Title/Abstract] AND diffusion[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 9 | 9 | 0 | 0 |
| (innovator[Title/Abstract] AND dissemination[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 1 | 1 | 0 | 0 |
| Various synonyms for "**innovator**" (theory term is "**resource system**") were tried, including "**pioneer**", "**originator**", "**inventor**", and "**developer**" still with tight specificity using title/abstract terms, but yielded little | | | | | |
| allintitle: pioneer + diffusion | Google | 30 | 30 | 0 | 0 |
| allintitle: pioneer + diffusion | Google Scholar | 8 | 8 | 0 | 0 |
| allintitle: pioneer + dissemination | Google | 0 | - | - | - |
| allintitle: pioneer + dissemination | Google Scholar | 2 | 2 | 0 | 0 |
| (pioneer[Title/Abstract] AND diffusion[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 15 | 15 | 1 | 0 |
| (pioneer[Title/Abstract] AND dissemination[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 10 | 10 | 2 | 2 |
| alltitle: originator + diffusion | Google | 1 | 1 | 0 | 0 |
| | Google Scholar | 0 | - | - | - |
| (originator[Title/Abstract] AND diffusion[Title/Abstract]) AND | PubMed | 2 | 2 | 0 | 0 |

| Search terms | Database | Total references returned | Title/Abstract reviews | Full article reviews | Relevant articles |
|---|---|---|---|---|---|
| ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | | | | | |
| alltitle: originator + dissemination | Google | 3 | 3 | 0 | 0 |
| | Google Scholar | 0 | - | - | - |
| (originator[Title/Abstract] AND dissemination[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 0 | - | - | - |
| alltitle: inventor + diffusion | Google | 1 | 1 | 0 | 0 |
| | Google Scholar | 1 | 1 | 0 | 0 |
| (inventor[Title/Abstract] AND diffusion[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 0 | - | - | - |
| alltitle: inventor + dissemination | Google | 1 | 1 | 0 | 0 |
| | Google Scholar | 0 | - | - | - |
| (inventor[Title/Abstract] AND dissemination[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 3 | 3 | 0 | 0 |
| alltitle: developer + diffusion | Google | 8 | 8 | 0 | 0 |
| | Google Scholar | 3 | 3 | 0 | 0 |
| (developer[Title/Abstract] AND diffusion[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 6 | 6 | 0 | 0 |
| alltitle: developer + dissemination | Google | 0 | - | - | - |
| | Google Scholar | 1 | 1 | 0 | 0 |
| (developer[Title/Abstract] AND dissemination[Title/Abstract]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 6 | 6 | 3 | 1 |
| resource system [Title/Abstract] AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 35 | 35 | 0 | 0 |
| Progressively broaden search by relaxing fields to include other than title/abstract | | | | | |
| innovator[All Fields] AND ("diffusion"[MeSH Terms] OR "diffusion"[All Fields]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 30 | 30 | 0 | 0 |
| innovator[All Fields] AND dissemination[All Fields] AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 4 | 4 | 0 | 0 |
| "resource system"[All Fields] AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 40 | 40 | 0 | 0 |

| Search terms | Database | Total references returned | Title/Abstract reviews | Full article reviews | Relevant articles |
|---|---|---|---|---|---|
| healthcare "resource system" - TEKS innovation | Google Scholar | 1230 | 1230 | 42 | 8 |
| ("research personnel"[MeSH Terms] OR ("research"[All Fields] AND "personnel"[All Fields]) OR "research personnel"[All Fields] OR "researcher"[All Fields]) AND ("diffusion"[MeSH Terms] OR "diffusion"[All Fields]) AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 949 | 949 | 38 | 13 |
| All citations to Greenhalgh (2008) | Google Scholar | 518 | 518 | 28 1NAvail | 2 |
| Using PubMed to identify articles associated with the Nurse Family Partnership (NFP) | | | | | |
| "nurse-family partnership"[All Fields] AND ("2005/01/01"[PDAT] : "2015/12/31"[PDAT]) | PubMed | 73 | 73 | 26 | 1 (best) article was used |

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Recipient Name
Recipient Title
Company Name
Address Line1
Address Line2


Dear Mr/Ms/Dr _____,

My name is Ken Coburn, MD, MPH.  I am a health care researcher and doctoral candidate in
public health at the UNC Gillings School of Global Public Health and have 11 years of
experience developing and testing models of community-based care management for
chronically ill older adults.  I invite you to participate in a research study to understand how
health care leaders think about collaborating with organizations that have developed advanced
preventive services, such as effective community-based care management.  The study has been
approved by the University of North Carolina (UNC) Institutional Review Board (IRB) and
has the potential to benefit society by providing insights into how health care organizations
might work together more effectively to disseminate innovations that benefit population
health.

Your participation would involve a single, 45 to 60 minute telephone interview.  Alternatively,
any senior executive with decision-making authority for your organization related to
collaborative partnerships could participate.  In appreciation of your time, I will forward you a
summary of key findings from the study once the analysis is complete.  To indicate your
willingness to participate or to find out more about this research please contact my research
assistant, Ms. Borah Coburn, by email or phone; bcoburn@hqp3.org, 908 635-1649.

Thank you.


Ken Coburn, MD, MPH
Principal Investigator

# APPENDIX E – INTERVIEW GUIDE

**Q1 a, b:**
**a** How would you describe your organization? **b** What is your role in the organization?

**Q2 a, b, c:**
**a.** Does your (health system/physician group/ health system-physician alliance) currently support a care coordination or care management program for chronically ill older adults living in the community? [If so, ask for a brief description.] **b.** Over the next few years, do you expect to be allocating more, less, or about the same resources to care coordination or care management services for chronically ill older adults? Why? **c.** Do you have or soon expect to have any risk-bearing contracts with payers? (including ACO participation)

**PROGRAM DESCRIPTION:**

I'd like to take a few minutes to briefly describe a new model of community-based nurse care management for chronically ill older adults. The model has been rigorously tested for over ten years in a Medicare demonstration project. It is a highly effective program, but one that is demanding to implement. It represents an innovation with the potential to improve our health care system if it could be effectively deployed on a large scale. After I describe the program, I will ask you questions about some approaches to enable a (health system/physician group/ health system-physician alliance) to provide this program to their patients.

The program utilizes experienced nurses who receive 6 to 9 months of intensive pre-service training followed by ongoing supervision and mentorship. These nurses deliver a broad portfolio of evidence-based preventive interventions in the community through frequent in-person contacts, group programs, and telephone monitoring in collaboration with a participant's primary care provider.

The program is administered and tightly managed according to explicit protocols using a customized data and reporting system. Patients receive an average of 2 to 3 contacts per month, to provide a set of services that match their needs as their condition changes over a long-term follow up period. These services include chronic disease self-management coaching, healthy life style behavior change coaching, structured group education, physical activity, gait and balance training, medication reconciliation, transition of care support, ongoing assessments and monitoring, and help coordinating medical care and community-services.

According to results of a carefully done randomized trial, for high-risk individuals, the program reduced hospitalizations 39%, decreased emergency room visits 37%, lowered all-cause mortality 30%, and reduced net health care costs 28%.

Other models of care coordination and care management tested by CMS have not been as effective and it is believed that tight adherence to the program's rigorous process specifications, training, performance reporting, and management practices are essential for its effectiveness.

Before I ask you questions about how your organization might view utilizing a program like this, do you have any questions about the program I've just described or anything that you'd like me to repeat or review?

**Q3 a, b, c, & d:**
**a**  How would you view the possibility of collaborating with the developers of this program so that they could help you deliver the program to your patients?  Why? –and/or- What would most entice or deter you from doing so?

*[As appropriate, (for example the subject rejects the idea of collaboration for fear of an adverse financial impact), instruct interviewee to answer the question under the assumption that payment models and incentives in place would yield a break-even or modest net improvement in their organization's 'bottom line' for supporting and encouraging the use of this model.]*

Specifically, how would you feel if such a collaboration required your (health system/physician group/ health system-physician alliance) to …;

**b**  Assist in making introductions to and help establishing relationships with the (primary care physicians/health systems) in your community

**c**  Share clinical and billing data to support case-finding and ongoing management

**d**  Lease your employees to enable delivery of the program.  Through a lease back agreement, the developers of the program would directly manage the staff (in accordance with your HR standards), and reimburse your organization for staff salary and benefits.  This facilitates recruitment of qualified nurses in your area and cultivates expertise for this work among your employees.

**Q4:**
How would you view the possibility of directly delivering this program as a licensed franchisee with oversight, training, tools, and monitoring provided by the developers of the model acting as the franchiser?  Why? -or- What would most entice or deter you from doing so?

*[As appropriate, instruct interviewee to answer the question under the assumption that payment models and incentives in place would yield a relative*

*modest net improvement in their organization's 'bottom line' for signing on as a franchisee.]*

**Q5:**
Would you prefer to create your own care coordination or care management program rather than collaborate with and adopt a program developed by others, or rather than franchise such a program?  Why?  Do you think your feelings on this issue reflect the prevailing sentiment of your organization overall?

**Q6:**
How would you view the possibility of participating in a regional cooperative that would have responsibility for delivering this program in your area?  Under this scenario, an organization jointly owned and governed by a consortium of member health care organizations from your area would receive guidance and technical support from the originators of the program and would be responsible for delivering the program in your area.  Why? -or- What would most entice or deter you from doing so?

**Q7:**
Do you have any other thoughts about the best way to make this program available to the population served by your (health system/physician group/ health system-physician alliance)?

Thank you very much for your time and thoughtful answers.

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