Home-Based Primary Care Program for Home-Limited Patients

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Historical Recap: Home Medical Care in Past Times

Back in the day, the house call was the principal setting for most of primary care in the U.S. Physicians had few effective tools and patients were less mobile, so it made sense. In 1850, physicians in Philadelphia reportedly made 30 home visits a day—likely seeing families as a group in smaller communities without traffic. And in the early 1900s Richmond, Virginia hired four physicians who made daily rounds in horse drawn carriages treating accidental injuries and infections, and rendering the earliest forms of palliative care. Concurrently, in the first half of the twentieth century voluntary parish nurses and public health workers in some urban settings offered the precursor of care now rendered by modern home health agencies. These nurses provided care at home, much of which was counseling and supportive care since technical services were still limited.

Then, as technologic revolutions in medical care drove health care into hospitals in the mid-1900s, physicians organized their work in office settings. Despite innovations like the 1950 Montefiore chronic illness care program in New York City led by Bluestone and Cherkasky which provided physician care, including subspecialty services, to chronically ill adults at home, house calls dropped from 40 % of primary care visits in 1930 to 1 % in 1980. Relative inefficiency of home visits in a fee-for-service world with inadequate reimbursement per visit, and the lack of physicians' now familiar office support team and access to quick diagnostics combined to relegate house calls to an occasional social service from a bygone era, offered only to longstanding patients and often only when they were dying.

Contributing to home visits' decline was the rapid growth of home health agency care, authorized in the 1965 Medicare legislation. This law states that Part A home health care is available to patients who meet a specific definition of homebound (able to leave home infrequently other than for medical care and religious worship, and then with difficulty), plus needing defined skilled professional services on a part-time, intermittent basis, and finally having a physician's order. By the mid-1990s, Medicare home health agency care expenses were $18 billion and growing 17 % annually. Though intermittent, this model provided the bulk of in-home health care for sick patients. While Medicare home health agency care required physician authorization, the typical care process became disconnected from the ordering physician and has largely remained so. Many of these sick patients who are functionally homebound see physicians far less often than similarly ill patients managed in any other setting, and have less physician's input on the evolving care plan. The presence of a professional care option (home health agency care) for the sicker patients, at least for a short interval, probably made it easier for physicians to step aside. These immobile patients then simply dropped out of view of the medical community.

Through the 1990s, operating under cost-based reimbursement, home health agency care episodes extended to 6 months in many cases and almost half of the visits were made by home health aides who were in the home for several hours per day; this was becoming a chronic care service which was not what was intended when the law was created. Medicare home health agency care growth was then abruptly constrained by the 1997 Balanced Budget Act and the Interim Payment System (1997–2000) which cut services in half and put thousands of agencies out of business. Skilled home care slowly rebounded under the home health care Prospective Payment System (implemented in 2000), that pays agencies on a 60-day case rate that is adjusted to patient condition. This business is again approaching $20 billion in

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M.L. Malone et al. (eds.), *Geriatrics Models of Care: Bringing 'Best Practice' to an Aging America*,
DOI 10.1007/978-3-319-16068-9_15,

annual expenses with more than 11,000 Medicare certified home health agencies in the US Home health aide visits are almost entirely gone, professional visits per episode have dropped by half and episodes themselves now average only 35 days. This care model is fragmented, limited more than ever by the short-term nature of Medicare home health benefits, and it still fosters frequent use of emergency services and hospitals when illness worries patients and families. The rate of hospital care during a 60-day home health episode has remained in the 25–30 % range since 1985.

What has happened with the medical component of health care of these patients? After decades of steep decline, primary care in the home is now experiencing a gradual and accelerating renaissance. The rebirth was initially sparked in the 1970s by visionary academic geriatrician leaders like Phillip Brickner, whose lead article in the 1975 Annals of Internal Medicine was titled, "the homebound aged: a medically unreached group,"; and Knight Steel and John Burton, who recognized the inherent value of seeing people at home, along with clinician advocates who felt the need for more direct physician involvement in home care. In the mid-1980s, a new generation of leaders forged the American Academy of Home Care Physicians—now the American Academy of Home Care Medicine. With a dual focus on education and advocacy, the Academy grew and pushed the agenda to enhance the Medicare fee schedule for home and domiciliary visits between 1996 and 2001. Under these new drivers, Medicare home visits almost tripled, resulting in some large and sustainable (though volume-dependent) clinical programs.

Finally, with the 1997 Balanced Budget Act, advance practice nurses (APNs, most of whom are nurse practitioners or NPs) could be reimbursed for services provided within their "scope of practice," regardless of site, and subject to state regulations. Not requiring the collaborating physician to be physically present led to rapid growth in NP home-centered medical practice ; by 2006 the fraction of 3.8 million Medicare home visits billed by physician assistants (PAs) and NPs rose from 15 to 26 % [1].

This recap sets the historical stage for in-home medical care. We now move into an era of managing chronic illness, heavily influenced by the demography of 78 million baby boomers. Further, we provide care in the context of the successes of biomedical care in preventing rapid death when people develop serious health problems, including organ system failure and advanced cancers. These challenges have both clinical and economic implications.

House Calls

Let us consider why house calls are compelling. Clinicians who are familiar with office, hospital or nursing home settings and then start making house calls have a shared realization that several things are unique to the home setting. One was formally studied by Joe Ramsdell at San Diego whose team observed 1.6 new findings during home geriatric assessment after comprehensive clinic-based assessment, while noting that individuals with moderate cognitive impairment performed on average 5 points better on the Mini-Mental State Exam when seen at home. The provider in the home quickly gains important insights about the patient's needs and care processes that are difficult or impossible to obtain otherwise. Beyond getting a more accurate assessment, more efficiently, the provider is also better able to calibrate the care plan to the preferences, capabilities and constraints of the home after doing environmental assessment, safety assessment, and medication reconciliation.

Moreover, one of the most important values of the home visit is that it engenders trust and places the provider on the patient and family's turf, thus altering the power dynamic in the therapeutic relationship. This promotes a more effective care process with greater opportunity for patient empowerment, and fosters outcomes that are aligned with patient and family preferences including peaceful death at home when that is best.

In addition to providing better information and building trust, house calls overcome a major barrier to care access which is immobility. Whether immobility derives from physical limitations, dependence on poorly portable technology like ventilators, or neuropsychological problems including dementia, patient immobility leads to many misadventures in health care caused by the lack of timely access and the discontinuity. Once we started making house calls, it never seemed right that a frail patient would be pulled from home, sometimes from bed, to endure arduous transport to the provider's office for a brief visit on the provider's turf and schedule, often not matched to patient need, and then returned home where they would report needing some days to recover from going to see the doctor!

Now, in the context of reducing avoidable acute care episodes with their related risks and costs, a unique value of mobile medical care is the provider's ability to respond to immobile patients' urgent or emergent needs in a timely manner that is often simply not achievable using the office care setting.

Along with increasing pressure to reduce reliance on hospitals with their risks to vulnerable patients and cost, the past decade has witnessed rapid advances in portable technology including lab testing at the point of care, X-rays, ultrasound, electrocardiograms, and electronic records; many technical limitations of home visits that concerned office-based providers in the 1980s are in the past.

Paralleling these changes to medical care in the home, there has been a steady presence of various social supports in the community available to subsets of patients as they qualify based on low income or other factors. Most notable is

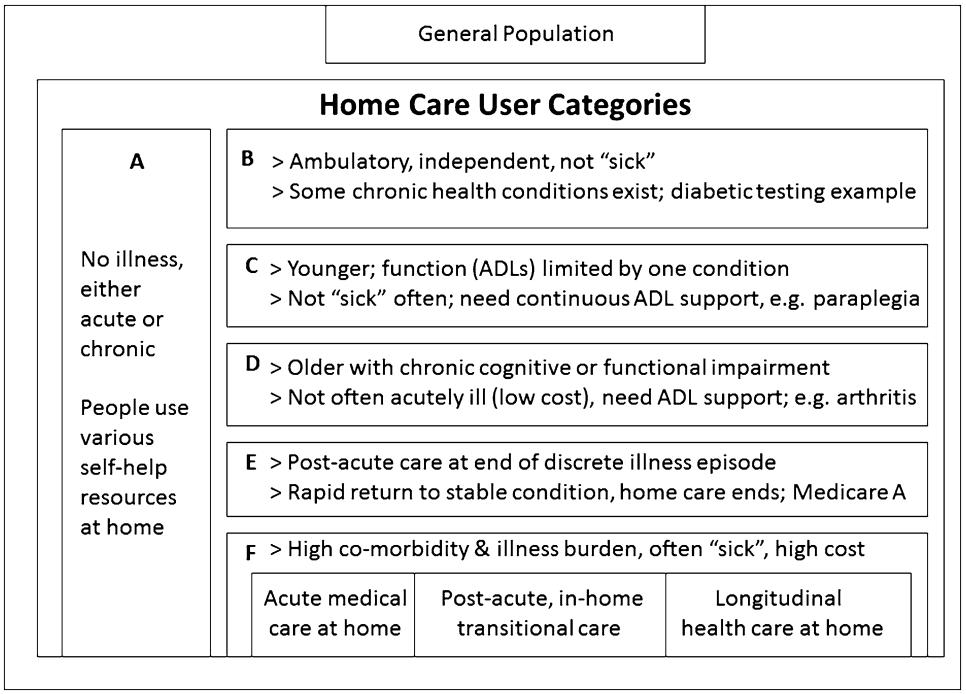

Fig. 15.1 Subpopulations that use home care in different ways

Medicaid-funded personal care for those with very low incomes and who have documented clinical needs for daily activity support. Personal care is also an option for those who can afford $20 per hour for the service or who have private long-term care insurance. Personal care aides play an important role in helping people stay at home.

Other support services, which vary greatly from community to community, are also important in keeping people safely at home. Among those has been a constant and important role of adaptive technology that is needed for care at home. Figures 15.1 and 15.2, respectively, show common home care user categories and related payment sources for services to meet the patients' needs. In our discussion here, we would include population groups C through F.

Payment for services creates much of the fragmentation. Figure 15.2 partially demonstrates this complex issue, featuring the most common services and payment mechanisms.

Epidemiology and Scope of Need for Home-Based Primary Care

An important consideration for health policy-makers in relation to home-based medical care is the size of the population needing home-based medical services, among the groups demonstrated in Fig. 15.1. This book presents many models of in-home medical care, from highly acute (hospital at home), short-term transitional care when acutely ill, longitudinal care, and palliative care. Some longitudinal home medical care models incorporate the full range of acute, post-acute, and chronic care services. Patients who need and should benefit from medical care at home have heterogeneous needs and clinical indications. Let us start with those who are largely home-limited on a chronic basis.

Most patients and families prefer living at home over institutional care. Using a prevalence estimate derived from national surveys for community-dwelling persons, among the 65+ age group there are about 7 % with chronic dependency in 3 or more ADLs (3 million), and about 1 % have bed-to-chair or bedfast status. Eleven percent (3.7 million) of older Medicare enrollees received personal care services in 1999. Over three million elderly are now homebound due to physical and cognitive impairments that make it difficult for them to leave their home [2]. Comparing children and younger adults with older persons, there are lower but still noteworthy rates of advanced ADL limitation. In all, there are probably three million people who are chronically home-limited and [3] can leave home only with considerable difficulty. This number will grow rapidly with the baby boom.

And, while less chronic care is now supported by Medicare, the proportion of Medicaid funding used for institutional long-term care relative to home-based care has dropped from 80 to 62 % by 2009, a shift that increased both the available supports and the functional dependency levels in the community. These vulnerable individuals require and are supported by a network of services, often coordinated through an Area Agency on Aging, of which there is one for nearly every U.S. community. Those states that have invested in community supports have lower nursing home use.

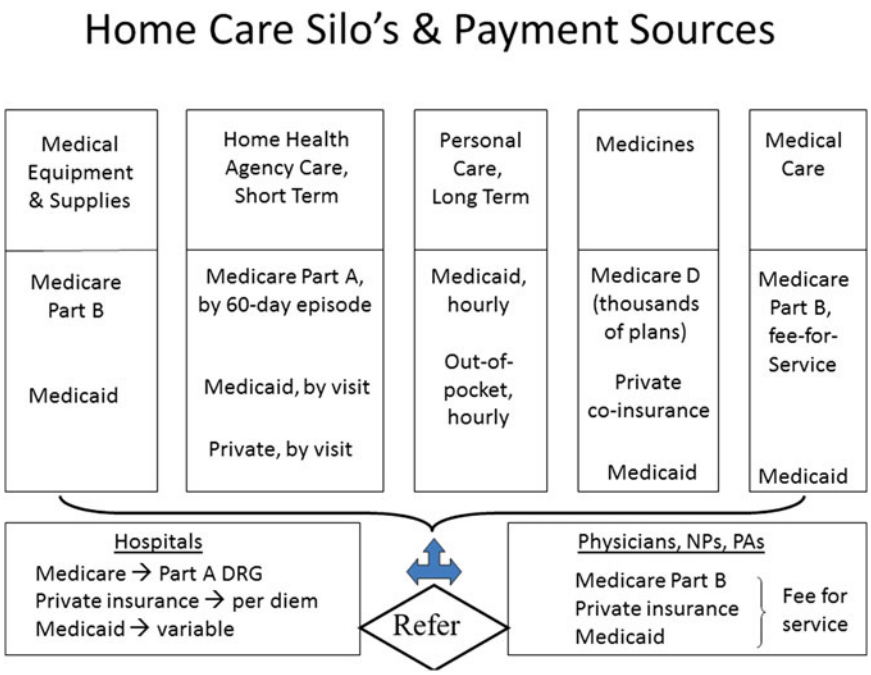

Fig. 15.2 Common home care services and major payment sources

The numbers of persons who need short-term mobile medical care during a year are at least twice that of chronically immobile persons, but many in this short-term group recover mobility and no longer need home medical care, or die; in all the approximate total numbers of persons needing home visits remains manageable, annually in the 5–6 million person range. Many of these individuals reside in clusters, in senior apartment buildings and other new residential options such as assisted living communities, which also permits greater efficiency when delivering mobile medical care.

How does this translate to the need for home visits? For many chronically immobile individuals, medical service encounters are needed about once a month or more on average, some more and some less, to maintain stability and avoid reliance on hospitals and nursing homes when urgent problems appear. If you add in people who need only acute and post-acute care in-home care, as well as those who receive end-of-life and hospice care, groups where the need is usually limited to a few months of medical home visits, you complete the picture of need for house calls.

Combined, the need for mobile medical visits probably exceeds 20 million visits annually, which contrasts with the 3.8 million visits recorded by Medicare now. Estimates for physician in-home services from national surveys in 1985 [4] and 2003 [5], suggest that less than half of office-based primary care providers make house calls and then infrequently. By 2003, 18 % of US physicians had made house calls, and those who did averaged fewer than 5 per week. An analysis from 2012 Medicare billing data showed 10,773 providers (MDs, DOs, NPs, and PAs) with house call and domiciliary visit bills, of whom 3,891 providers had at least 250 visits [6].

It Takes a Village: The House Call Team and the Home-Based Primary Care Model

To use an overused expression, if you have seen one house call program, you have seen one house call program. Most share an understanding of the core value of taking medical care to frail patients at home. Past that, there are many variations. Some are concentrated in group living settings and have formal relationships with residential communities. Some use medical technicians as drivers and assistants to the medical providers. Some own and deploy technology including imaging services, tele-monitoring, and other diagnostic tools such as remote cardiac impedance testing. Some are more comfortable with delivering an acute care or emergent care response while others prefer rendering primary care. Some serve technology-dependent patients like those on home ventilators; others do not. The degree of medical complexity in a given practice varies considerably. Some are rural rather than urban and suburban. Some charge a substantial per-visit travel fee, not covered by insurance. Some are concierge programs that do not accept Medicare. Some are hospital-based and supported while others are completely independent of medical centers. Some are closely affiliated with a home health agency or hospice and may even have an integrated agency or hospice organization. Some are small with 1–3 providers while others are multi-state organizations with hundreds of employees and substantial

administrative infrastructure. Central administrative support is likely to include billing and business management, plus support services including triage and dispatch, routing programs to support providers, and advanced information systems. Most programs now use EHRs. Medical malpractice is not a major issue in home care to this date. Lexus Nexus searches reveal very few lawsuits, probably because of the favorable relationship with patients and the poor clinical prognosis.

The daily operations of house call teams also vary. Some programs have weekly team meetings. Others rely on distance communication and EHRs to maintain connections. In our experience managing very complex patients, a team meeting is important because of the need to get multiple perspectives on a difficult case, and to update the team on regulatory and other community-level changes. Provider visit volumes can range as high as 12–14 visits a day and as low as 3–4 a day, depending on the clinical model and circumstances. For program efficiency as programs grow it is essential to have personnel in the office with clinical credentials to answer phone calls (nurses, for example), to perform triage provide support, and help route providers. Grouping visits and patient panels by geography is common.

In most programs, home-centered medicine is a team effort. Though many programs serve younger adults or children, a core concept arises from geriatric care: the importance of the interdisciplinary team, where each member plays a vital role. A house call program needs an extended team with partners from community-based programs. Typically there is a network of resources that are familiar to providers: pharmacies that deliver medications, social service agencies, preferred home health agency and durable medical equipment providers, adult homes and assisted living settings. These networks are critical to effectively managing this population. A recent review [7] described elements of home-based primary care practices which were successful in improving clinical outcomes (hospitalizations, costs, hospital or nursing facility days of care). Key strengths noted were: interdisciplinary teams, frequent contact among team members, and 24/7 access for patients.

When the full context of supporting frail elders in the community is considered, including both medical and social supportive services, the scope of need to be addressed becomes apparent. Comprehensive care plans require the skills of social workers, therapists, pharmacists, psychiatrists, psychologists, nurses, technologists (lab and radiology) as well as the core medical team (physician, nurse practitioner, or physician assistant), service coordinators, and often individuals who provide daily ADL support when patient and family are not able.

Small private home medical practices may consist of a physician or nurse practitioner who make home visits 2 days a week and see patients in other settings on other days. Their team may include a home health agency and an office staff that handles phone calls, scheduling, and paperwork. A larger practice may consist of several physicians, nurse practitioners, and physician assistants who provide routine and urgent home visits. A larger house call practice may also support a social worker, a registered nurse, and support staff.

Visit frequencies vary. Commonly patients served in this model average 10–15 visits a year. Some patients only need a few visits and others may be seen weekly because they are so sick. A typical day in a practice that is not focused on congregate living may include 5–6 visits per provider, with space held for acute visits or new patients. In practices with both NPs and physicians, some have the physician make the initial visit, while in others nurse practitioners have this role. Occasional team visits are effective, as several disciplines focus on a particularly complex situation.

Providing medical care at home requires a distinctive set of provider attributes. These include: (1) confidence in one's decision-making and clinical skills, (2) higher tolerance for uncertainty, (3) willingness to use time as a diagnostic tool, (4) respect for teammates and their contributions to the patient's care, (5) willingness to practice in less than pristine circumstances, and (6) comfort working with patients and families around difficult issues, some of which cannot be resolved.

Looking Forward, Finances, and Specific Care Models

To deliver in-home medical care in an optimal manner there must be sufficient funding. Medicare payments are insufficient to pay for advanced care coordination, or for employing the other team members needed by the core medical providers, such as social workers, triage nurses, or pharmacists. Reliance on fee-for-service revenue unfortunately skews the model away from patient needs and limits the team's potential to do the work needed to keep patients out of hospitals or nursing homes. Unless the fee-for-service team has a sponsor to defray the extra costs, the focus must be on volume to cover provider salaries and the bottom line, which ultimately take priority over societal value.

Value-based purchasing requires alternative payment strategies, aligned with the goals of advanced clinical models. This can occur in several ways. An Accountable Care Organization (ACO) or other health system with a large-scale risk contract might choose to include house call services, though to date most have not. A payer might contract directly with house call services for primary care or transitional care, potentially under a risk contract, and might also consider innovative options like gain-sharing. In the latter regard, help from actuaries who understand risk adjustment in this frail population is necessary to assure accurate determination of "expected costs" in the absence of an intervention

so that gain-share calculations will be fair. Creating alternate payment models and aligning incentives requires a forward-thinking and innovative management team. The organization taking the risk must be aware of what in-home care can do. That organization will make the investment and the necessary changes in administrative processes to manage the finances. Specific examples are discussed below.

Department of Veterans Affairs Home-Based Primary Care (HBPC)

HBPC is a major component of the VA's strategy to shift care from institutional to community settings. Between 2000 and 2012, the number of veterans aged 85 and older tripled and the HBPC census increased from 7,300 to 30,000 while the VA-provided nursing home care census rose only 20 % from 30,700 to 36,000. HBPC is delivered by a broad interdisciplinary team. The program targets veterans with multiple chronic diseases and complex challenges. The program functions as an intensive patient-centered medical home for these most vulnerable veterans. In VA terminology, patient-centered medical homes are Patient Aligned Care Teams (PACTs) and HBPC is a Specialty PACT. Since 1972 with six sites, HBPC has expanded to all 139 VA medical centers by 2012. Since 2006 over 60 new programs have been added, while maintaining fidelity of the intervention and clinical outcomes [8]. In 2007, a new setting was added—the Medical Foster Home where veterans who would otherwise require a nursing facility for safety live in the home of a foster caregiver, with care coordinated by the HBPC team.

The HBPC team consists of a nurse, physician, nurse practitioner, social worker, rehabilitation therapist, dietitian, pharmacist, and psychologist. Some programs also have psychiatrists, chaplains, or recreation therapists as core personnel. Programs that paired an NP or PA with a physician used less institutional care than teams that relied exclusively on physicians. Through a consensus process, recommended HBPC caseloads are: 30–40 patients per nurse; 75–100 patients per NP, and 100–125 patients per therapist.

HBPC is tasked to care for individuals where "clinic-based care is not effective," Most of these individuals have chronic, complex disabling disease, and mortality averages 20 %–25 % annually. Veterans trust this type of care, attributing prevention of avoidable and unwanted hospital and emergency care to HBPC. In qualitative studies, HBPC characteristics that correlate with fewer hospital readmissions of Medicare beneficiaries include better adherence to medication management, individual involvement in healthcare decisions, early recognition of exacerbation of symptoms, and family caregiver support. On the VA's 2007 National Patient Satisfaction Survey, 83 % of veterans rated HBPC care as very good or excellent, the highest overall satisfaction rating among VA programs.

HBPC teams cover a wide geography, including rural areas. Strategies to overcome barriers related to travel time include dissemination of satellite HBPC teams to community-based outpatient clinics [CBOC], and tele-medicine, ranging from electronic reminders for chronic disease management to comprehensive video for remotely conducting a physical exam.

HBPC's effects have been studied repeatedly. The core team is expensive, costing $10,000–$13,000 per beneficiary year. All analyses demonstrate improved caregiver and patient satisfaction, improved caregiver function; importantly, analyses also consistently demonstrate reduced hospital and nursing facility days, hospital admissions, hospital readmissions, and total costs. In a 2002 longitudinal pre–post analysis of 11,334 individuals, HBPC enrollment was associated with 24 % total VA cost reduction. In a similar 2007 analysis, HBPC enrollment was associated with reductions in VA hospital bed-days of care (59 %), nursing home bed-days of care (89 %), and 30-day hospital readmissions (21 %). Because the VA is an integrated system, it has been able to establish benchmarks for team performance, following hospital days of care, hospital admissions, and hospital readmissions from the 6 months before admission to the 12 months after admission. As HBPC expanded during 2006–2013, hospitalization rate declined to 6 hospitalizations per 100 veteran months, and hospital days dropped 50–60 % in more than 85 % of the programs [8]. A recent analysis [9] demonstrated that the VA HBPC programs reduced total costs to both Medicare and to the VA by 11 % compared with prospectively estimated cost benchmarks that were carefully risk-adjusted. Targeting is essential. It is hard to prevent hospitalizations among veterans who do not use the hospital.

ElderPAC

Patients who are eligible for both Medicare and Medicaid are among the frailest, least educated and most expensive Medicare beneficiaries. These eight million dual-eligible individuals generate 46 % of Medicaid and 25 % of Medicare expenditures. More than a quarter have 3 or more ADL dependencies and 11 % have 5 or more chronic conditions. Their social and medical needs are complex. Current arrangement of health care in service settings that are separate silos creates inefficiencies, duplication, and gaping holes that can result in long-term institutional care.

To fill these gaps, for 15 years the University of Pennsylvania Health System has operated an integrated, interdisciplinary team called ElderPAC, linking a house calls team and a home health agency with staff from the local Area Agency on Aging (AAA), and serving frail low income elderly

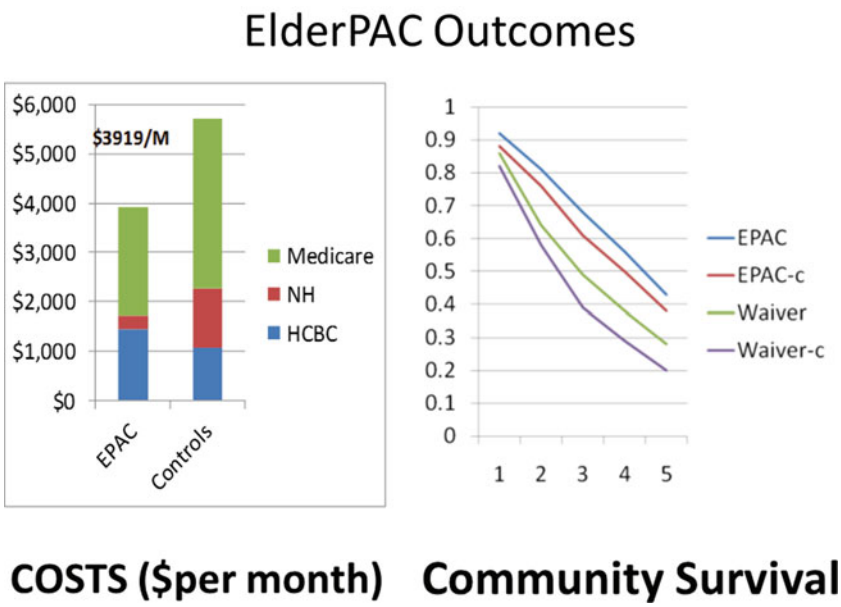

Fig. 15.3 ElderPAC community survival and costs. *EPAC* elder partnership for all-inclusive care, *NH* nursing home, *HCBC* home and community-based care, *Waiver* control patients selected from Aging Waiver, *Waiver-c* control patients residing in the community

consumers. Before ElderPAC formed, 3 nurse practitioners caring for 180 patients had to work with 39 case managers at the AAA while each case manager at the AAA worked with 50 different providers. This inhibited formation of productive relationships and effective teamwork. The cement for ElderPAC initially was weekly team meetings; using telecommunications, a shared electronic medical record and a unified care plan, the team now meets monthly. Two evaluations of ElderPAC have addressed the potential to prolong community survival for frail elders, and reduce Medicaid nursing home costs and total Medicaid costs by providing more and better home and community-based care [10].

The initial ElderPAC cohort of 50 patients was matched with 50 consumers from the Pennsylvania low income service programs that were not managed by an integrated team. Patients were followed for 5 years to track community survival. Medicare costs were compared for the initial 2 years (1997–1999). Matched controls were randomly picked from low-income community long-term care service consumers. Medicare costs were estimated from Hierarchical Condition Category (HCC) scores and Medicaid costs were obtained from the State of Pennsylvania. Deaths were obtained from state vital records. Community service costs were measured from the local care plan system and Medicaid files. Functional status scores came from the common intake assessment. Primary outcomes were community survival time (alive and residing outside an institution), nursing home use, mortality, and costs.

The second cohort of 92 patients had 4,360 beneficiary-months of observation and very high risk scores for institutional care need. The control cohort overall had 300 consumers, with 6,910 waiver months of observation. Among 92 ElderPAC consumers, mean age was 82, and 86 % were female. Mean HCC score was 3.55, compared with the mean PACE HCC of 2.33; these patients have very high disease burden. ElderPAC participants had 3.7 ADL impairments, with 48 % having 5–6 impairments. The community comparison group was somewhat less impaired—biasing against finding a favorable impact.

The first ElderPAC cohort demonstrated a 60 % reduction in annual Medicare spending compared to matched controls, from an annual $47,015 to $18,808 per beneficiary in 2,010 dollars. As a further control, annual Medicare costs of the 1999 National Long Term Care Survey participants who had 3+ ADL dependencies and were receiving home health care were over $49,681. In the second cohort, HCC-based expected costs were reduced by approximately 50 % ($24,000 vs. $51,000).

In the second cohort, the ElderPAC group had 3.8 hospitalizations/100 beneficiaries compared to 7.2/100 among the control group. Long-term nursing home use over the 5 years was less (5.9 % vs. 24.9 %), while the care plan costs for community care were greater ($1,942 ± 1,117 vs $1,084 ± 477). ElderPAC patients had a mean survival of 44.3 months in the community, and 46.8 months overall, while for HCBS comparison consumers community survival was 24.2 months, and 31.9 months overall (Fig. 15.3). There was 76 % less time in nursing homes: 7.7–2.5 months. Using Medicaid claims, average monthly expenditures for ElderPAC patients was $20,640 compared to $27,084 for control consumers, with the major difference being in the costs spent on NH care (24 % reduction). Thus, integrated care is a dominant strategy, providing greater health (survival) at lower cost.

Nurse Practitioner-Led Programs

There are notable house call programs where the main workforce is nurse practitioners (NPs), and some that are primarily operated by NP leaders. These programs engage physicians as consultants, but function in states with strong independent practice regulations where nurse practitioners can evaluate patients, diagnose, order and interpret diagnostic tests, initiate and manage treatments—including prescribing medications—under the exclusive licensure authority of the state board of nursing. There are now nearly 20 states with a full practice regulatory environment. Some programs operate in states with more limited practice regulations, where state licensure law limits the ability of nurse practitioners to undertake some elements of NP practice. Some of these programs are physician operated, but rely exclusively on NPs to provide the primary care at home, while others are owned by nurse practitioners. Other programs, given the complexity of their homebound patients, use a collaborative model, rather than a consultant physician model, with both providers caring for the patient; nurse practitioners are often the primary providers and do 75 % or more of the visits.

Independence at Home Demonstration

Section 3024 of the 2010 ACA created the Independence at Home (IAH) demonstration, to test the house calls team model in the context of Medicare fee-for-service. IAH enrollment requires sick patients, who have been in the hospital within the past 12 months, have used post-acute care (skilled home health care, skilled nursing facility (SNF) care, inpatient rehab in that same period); have two or more serious chronic conditions; and two or more persistent ADL deficits. The law prescribes a 3-year demonstration with a cap of 10,000 Medicare beneficiaries. There are 18 sites involved in this demonstration, including 2 consortium groups. The demonstration is in its third year. There are several quality measures, designed to insure that patients receive good care and to insure timely response by the IAH teams in the face of acute problems. The payments are standard Medicare payments—patients use their Medicare and other insurance benefits as they always have—plus payments to the IAH team based on a share of residual savings, calculated by subtracting actual costs from calculated expected costs, after a minimum 5 % savings is retained by Medicare. Excellent, timely, continuous care of very sick patients across the care continuum should result in less hospital and nursing home and generate savings. The demonstration includes a variety of programs and is being evaluated by federal contractors.

A recent paper using case–control methods describes successful results from a cohort of 722 patients treated before the IAH demonstration started, and cared for by one program that is participating in the IAH demonstration. Overall savings were reported to be 17 % over 2 years [11], and by using a subset of patients that met IAH administrative enrollment criteria, savings are estimated to have been 31 % over two years. This clinical team provides physician and nurse practitioner home visits, has strong social work support, nurse triage, pharmacy consultation, and a network of social services that are affiliated. Most of the inpatient care is managed by the core team at one hospital.

Academic Programs

Much of the developmental work with house calls models and the renaissance of the field have arisen from organized programs that now exist across the country at dozens of academic medical centers. Ultimately, this will also be where the future leaders and the workforce will be trained. Generally these programs are smaller than private practices in the community and may have institutional support to help sustain multifaceted missions that include teaching, research, and helping hospitals manage readmissions plus other risks. There are some larger academic programs such as those of the Boston University home medical service that has operated for 130 years, Mount Sinai visiting physicians and the Cleveland Clinic house call program that carry a census around 1,000 patients. Like Boston University and Mount Sinai, the program at Virginia Commonwealth University (VCU) supports a mandatory house call experience for all 211 medical students in each class as well as other learner activities. The VCU initiative [12] includes a Naylor model transitional care program that has shown consistently positive impacts for 14 years and is integrated across the continuum of care with clinic, inpatient care, chronic house calls, nursing home, and hospice. VCU is also participating in one of the IAH demonstration consortia along with the Washington Hospital Center and the University of Pennsylvania.

Evidence-Based Care

Until recently there have been relatively few formal studies of the in-home primary care model. A small randomized controlled trial (RCT) in the late 1970s showed improved satisfaction and probable cost savings in the final months of life. An early randomized controlled trial of VA HBPC with 16 sites from the early 1980s did not show savings, but it was evident that the model was not faithfully implemented in many centers during those earlier years. However, combining newer evidence from the revamped and structured VA HBPC, Hospital at Home, the Washington Hospital Center program, the Naylor transitional care program, the GRACE trial and others, there is

a growing, substantial body of support for the home-based care model. In fact, the evidence for cost savings from in-home care that focuses on complex patients is substantially stronger than what has come from disease-focused strategies, and other models of care that are now being discussed as central strategies for health care redesign. It also makes good sense to care for people where they live, whether in a nursing home or in their own home. This home-centered care should continue indefinitely, if needed, following support during a short-term period of instability and transitional care.

The Future

Health care systems change in an organic manner, variously influenced by exemplary practices, published evidence of benefit, market forces, health policy and insurance changes, patient and provider preferences, entrepreneurial efforts, local culture, and workforce development. The pace of change can be remarkably fast: witness the rise of hospitalists or statin usage, and the stoppage in use of estrogen replacement on the heels of the Woman's Health Initiative Study. Change can be agonizingly slow in the case of developing the model of home-based primary care to serve the vulnerable populations in our community that need those services. Given the growing evidence of efficacy and cost-effectiveness plus clear consumer preferences, and basic common sense, we should align incentives so that market forces can complete the transformation which has begun in caring for home-limited persons. The need is clear: home-based primary care is the right thing to do.

References

1. Moran. Data source: physician/supplier procedure summary (PSPS) master record file for medicare part B summary data (2005–2012). Physician/Supplier Procedure Summary (PSPS) Master File-2012.
2. Boling PA. Physicians in home care: past, present and future. Caring. 1998;17:10–5.
3. Kaye HS, LaPlante M, Harrington C. Do non-institutional long term care services reduce medicaid spending. Health Affairs. 2009;28(1):262–72. doi:10.1377/hlthaff.28.1.262.
4. Boling PA, Ellis J, Retchin SM, Pancoast S. The influence of physician specialty on housecalls. Arch Intern Med. 1990;150:2333–7.
5. Cheerie DK, Burt CW, Woodwell DA. National ambulatory medical care survey: 2001 summary. Adv-Data. 2003;11:337.
6. Sowislo R. US medical management, personal communication.
7. Stall N, Nowaczynski M, Sinha S. A systematic review of outcomes from home-based primary care programs for homebound older adults. J Am Geriatr Soc. 2014;62(12):2243–51. doi:10.1111/jgs.13088.
8. Kinosian B, Edes T, Becker P. Expanding VA's Home Based Primary Care (HBPC) while improving performance: 2006–2012. J Am Geriatr Soc. 2014;62 suppl 1:S136.
9. Edes T, Kinosian B, Vuckovic NH, et al. Improved access and cost for clinically complex veterans with home based primary care. J Am Geriatr Soc. 2014;62(10):1954–61. doi:10.1111/jgs.13030.
10. Yudin J. Sewing an all-inclusive quilt from Home and Community Services for Frail Elders: a community-academic housecall program partnership. Geriatr Nurs. 2013;34:162–5.
11. De Jonge KE, Jamshed N, Gilden D, Kubisiak J, Bruce SR, Taler G. Effects of home-based primary care on medicare costs in high-risk elders. J Am Geriatr Soc. 2014;62(10):1825–31. doi:10.1111/jgs.12974 (advanced e-publication).
12. Boling PA, Chandekar RV, Hungate B, Purvis M, Selby-Penczak R, Abbey LJ. Improving outcomes and lowering costs by applying advanced models of in-home care. Cleve Clin J Med. 2013;80(Electronic Suppl 1):eS7–14. doi:10.3949/ccjm.80.e-s1.03.