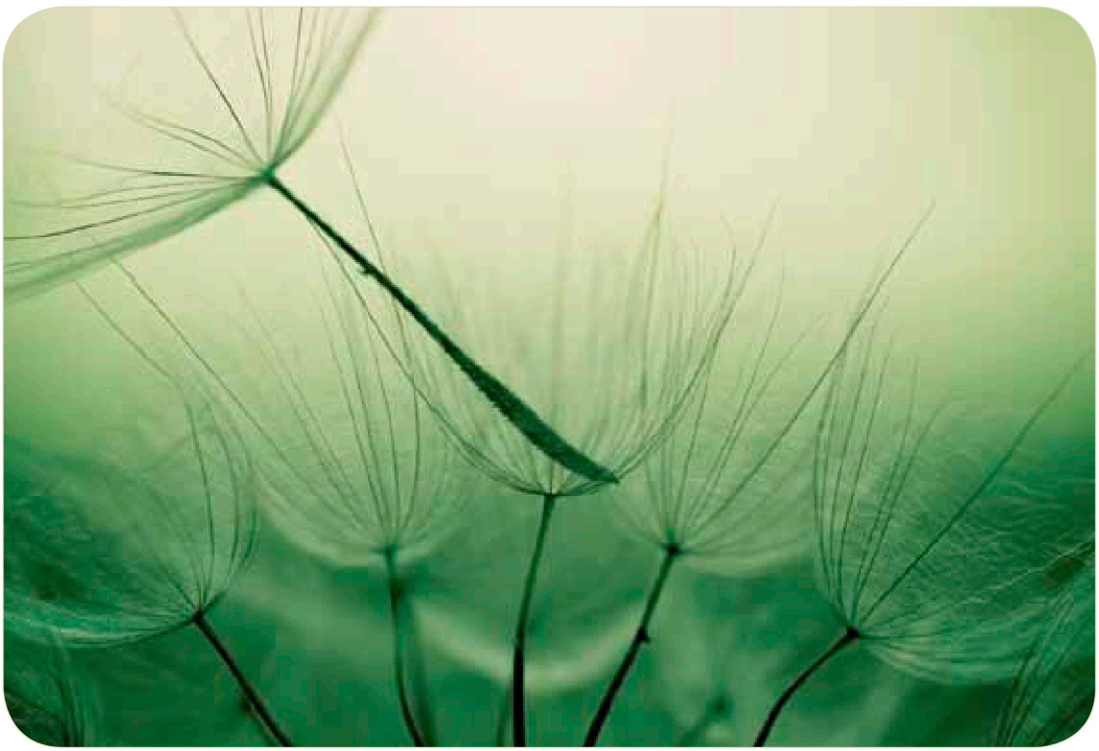
California HealthCare Foundation



Greenhouse Effect:
How Accelerators Are Seeding Digital Health Innovation

February 2013

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Prepared for
California HealthCare Foundation

by
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About the Author

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About the Foundation

The **California HealthCare Foundation** works as a catalyst to fulfill the promise of better health care for all Californians. We support ideas and innovations that improve quality, increase efficiency, and lower the costs of care. For more information, visit us online at www.chcf.org.

Note: CHCF has provided support for the accelerators profiled in this report.

Contents

I. Introduction

"I have never been more optimistic than I am right now about the future of health care. The future is already here, it's just not evenly distributed yet."

— Todd Park
US Chief Technology Officer

Common Investment Terms

Angel Investor. An individual who supplies risk capital to start-ups and early-stage companies, generally in return for equity. Angel investments are often in the range of $100,000 to $500,000.

Venture Capital. Risk capital supplied by a venture capital fund, a type of firm whose managers and investors deploy capital in exchange for equity in high-growth private companies. Venture capital investments are typically in excess of $2 million.

Limited Partner (LP). An investor in private investment funds, such as venture capital and private equity funds. LPs often include pension funds, large corporations, endowments, family offices, and high net-worth individuals.

Strategic Investor. An investor that provides additional value to its investments beyond the supply of capital by leveraging its own assets and capabilities, such as access to customers and industry knowledge.

Health accelerators emerged in 2011 as a natural outcome of converging trends across the landscapes of health care and technology startups. These programs aim to help entrepreneurs accelerate the launch and growth of new health technology companies by providing combinations of capital, strategic guidance, and business support. Since first appearing in San Francisco, Chicago, and New York, health-specific accelerator programs have been launched throughout the US and abroad, providing a range of options for young companies based on location, program features, amount and structure of capital, specialized focus, and strategic ties to the market. By the end of 2013, health accelerator graduates and active participants will number in the hundreds, and there could be more than 20 programs in operation worldwide.

Despite growing interest and investment in health accelerators, some industry observers question whether a model with roots in the Internet and mobile technology sectors can be as effective in the health care industry. The entrenched channels, long sales cycles, and significant regulatory burden in health care are at odds with the volume-driven model of rapid startup development found in technology accelerators. While changes to the health care payment and policy environments are creating opportunity for new health technology companies, the risk-averse culture of health care and a lack of proven revenue models for direct-to-consumer businesses can make pilots and early revenue difficult to obtain. Experts caution that health-specific accelerators will need to overcome these inherent challenges in order to realize their potential.

This report provides a window into the evolving landscape of health accelerators, as well as perspectives from industry thought leaders on opportunities to maximize the value of health accelerators and improve the chances of success for health technology entrepreneurs.

II. Health Accelerators Arrive

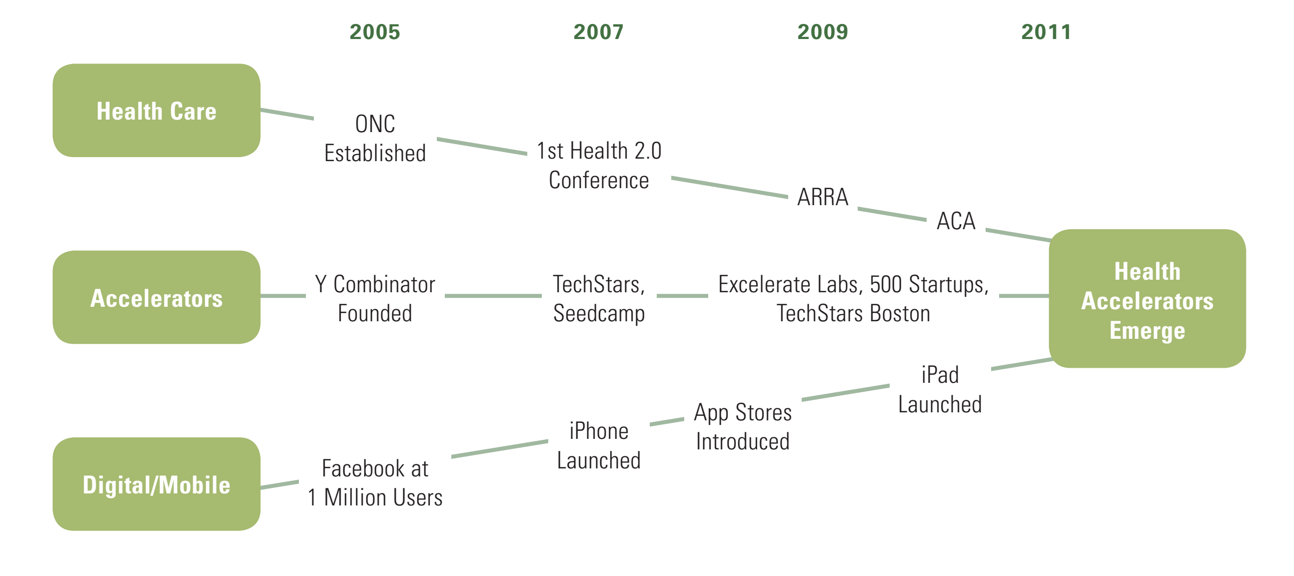
Birth of the Seed Accelerator

In 2005, former cofounder and CEO of Viaweb, Paul Graham, established a new model for funding and launching startups: the technology seed accelerator. Graham's company, Y Combinator (YC), was a departure from the capital intensive — and largely unsuccessful — internet technology incubators that became popular during the dot-com boom in the late 1990s. Rather than building a war chest of venture capital and investing millions in each new company, the strategy for YC was to make small investments — typically less than $20,000 in exchange for 2% to 10% equity — in a large number of startups with the hope of realizing outsized returns on a fraction of the companies.

YC was able to disrupt the startup funding model so dramatically because the cost of starting new companies had plummeted in the time since Graham sold Viaweb to Yahoo! in 1998. However, Graham's approach was not based solely on launching companies for the previous cost of a single Web server. The YC model also involved an open, yet highly selective, application process and funding startups in batches. Once accepted, startups received intensive mentoring in three-month cycles and prepared for "demo day," when the program culminated with an opportunity for startup founders to pitch potential investors.

In the years following YC's founding, the rapid spread of new social, mobile, and cloud technologies

Figure 1. Notable Events Leading Toward the Emergence of Health Accelerators, 2005 to 2011



Notes: ONC stands for Office of the National Coordinator.

bolstered the creation of dozens of technology seed accelerators throughout the world. Although new programs have experimented with variations on the model, the fundamental building blocks of the YC program — capital, guidance, community, and business support — have remained key components of nearly all accelerators that followed.

Rise of Health Accelerators

As technology seed accelerators were disrupting the startup landscape, the health care industry was simultaneously witnessing unprecedented investment in technology and embarking on a period of transformational reform.

In 2009, passage of the American Recovery and Reinvestment Act (ARRA) created billions of dollars in funding for health IT adoption and health information exchange. One year later, Congress passed the Affordable Care Act (ACA), containing the most significant reforms to the health system since the Medicare Act of 1965. Among its provisions, the ACA sought to expand coverage to 30 million new individuals and catalyze an industry-wide shift toward models of payment designed to encourage coordinated and accountable care.

In response to ARRA and the ACA, demand for new health services and technologies surged. Many of the largest companies in health care stepped up their acquisition and deployment of technology. Investors that had largely ignored health IT for the preceding decade also contemplated new opportunities. However, leading technology seed accelerators such as YC and TechStars continued to produce relatively few companies focused on health care. With significant capital flowing to health technology companies and multiple acquisitions in excess of $100 million in 2010, the opportunity for health-specific accelerator programs seemed clear.[1]

In June 2011, Rock Health, a San Francisco based "seed accelerator for digital health startups," announced its first class, pursuing concepts ranging from mobile wellness apps to optical attachments for disease diagnosis via smartphones. Within months of the Rock Health announcement, inaugural classes of startups debuted from Chicago-based Healthbox, Blueprint Health in New York City, and StartUp Health.

III. Emerging Accelerator Models

THE RAPIDLY EVOLVING LANDSCAPE of health accelerators offers options for startups across the full continuum of health and medical technologies, and at many stages of development — from an idea to a revenue-generating company with existing venture financing. Although the landscape is still nascent, new entrants signal a trend toward specialization and activity appears to be coalescing around four models: commercial seed accelerators, market-led programs, virtual networks, and university-affiliated accelerators.

Commercial Seed Accelerators

At the heart of this emerging ecosystem are commercial seed accelerators, including Rock Heath, Healthbox, and Blueprint Health. Commercial seed accelerators are similar to the technology accelerator model that YC pioneered in 2005, offering varying levels and forms of capital, guidance, community, and business support. Like YC and TechStars, commercial seed accelerators work with batches of startups — ranging from eight to 15 companies — in program cycles that are typically three months long and culminate in a demo day. Commercial seed accelerators also offer an open application process and have reported receiving hundreds of applications for each class to-date.

During the program, startups have access to office space and services, such as legal support, market research, accounting, and Web hosting. Founders gain advice from mentors, ranging from health industry executives to venture investors, and typically receive coaching directly from the accelerator staff on issues such as business model development and shaping an investor pitch. Programs also arrange for weekly speakers and educational sessions on topics relevant to health care startups, which is particularly helpful for founders with minimal exposure to the health care industry.

Since the launch of the first commercial seed accelerators in 2011, additional programs have

Rock Health

www.rockhealth.com

Harvard Business School classmates Halle Tecco and Nate Gross, MD, launched Rock Health in 2011 with the goal of creating the first nonprofit seed accelerator focused exclusively on digital health.

Rock Health invests heavily in building community through events, such as the annual Health Innovation Summit, and developing open-source research.

Proximity to Silicon Valley and ties to top VCs make the program an attractive option for digital health startups.

Locations	San Francisco, Boston
Structure	4-month residency; demo day; 6 weeks between classes; up to 15 companies per class
Capital	$100,000 convertible note
Focus	Concepts to early-stage (pre-VC) digital health companies with software and hardware products for consumer or enterprise customers
Market Ties	Strategic relationships with Harvard Medical School, Kaiser Permanente, Mayo Clinic, and UCSF Sponsors and partners include GE Healthcare, Genentech, Nike, Quest Diagnostics, Qualcomm Life, and UnitedHealth Group

emerged in the US and abroad, in countries including England, Ireland, Canada, and China. The structure of new programs remains largely similar, with location, amount and structure of capital, specialization by sector and/or stage, and market ties, accounting for the principal differences. Understanding the differentiation among them can help founders, investors, and industry stakeholders optimize the fit between a given program and its portfolio of startups.

Healthbox

www.healthbox.com

Healthbox was founded by Sandbox Industries, a Chicago-based venture fund and incubator with ties to BCBS Venture Partners and Excelerate Labs.

Healthbox maintains a network of close to 200 mentors, including broad representation across the health care industry, government, and investors.

Strategic ties to leading Blues Plans make Healthbox a good fit for startups that are positioned to leverage health plan relationships.

Locations	Chicago, Boston, London
Structure	3-month residency; demo day; 1–2 classes per year in each location; 10 companies per class
Capital	$50,000; 7% equity (anti-dilution clause)
Focus	Seed stage health technology and tech-enabled service companies with at least a prototype
Market Ties	Strategic relationships with the BCBS Association and individual Blues plans Additional sponsors and partners include Ascension Health, Ridgeview Medical Center and Clinics, Walgreens, BCBS Massachusetts, Express Scripts, Bayer HealthCare, Bupa, and Serco Health

Blueprint Health

www.blueprinthealth.org

Brad Weinberg, MD, co-founder of ShapeUp, and Matt Farkash founded Blueprint Health to address the lack of health care expertise in existing accelerators and capitalize on the unique environment in New York City.

Blueprint has more than 150 mentors from health care, IT, and the investment community.

The NYC location and extensive relationships with large health care companies make Blueprint attractive for companies selling to enterprise customers.

Location	New York City
Structure	3-month residency; demo day; 2 classes per year; up to 10 companies per class
Capital	$20,000; 6% equity (no anti-dilution clause or protective provisions)
Focus	Concept to early-stage health tech and services companies, primarily selling to enterprise customers
Market Ties	Strategic relationships with Humana, Aetna, GlaxoSmithKline, and Verizon; ties to national payers and local providers in NYC Relationships with more than 400 business development professionals at insurers, employers, hospitals, retail pharmacies, pharmaceutical companies, and health care media companies

The structure and amount of capital available to participants is an important consideration for startups. Funding arrangements include grant-based capital, equity financing, and convertible debt, with commitments from commercial seed accelerators ranging from $20,000 to $100,000. The source of capital can be equally important if a startup believes that financial support from top-tier venture capital firms or specific strategic health care investors may significantly affect the trajectory.

Although startup founders often apply to multiple programs in different places, location is an important factor, as many aspects of the health care system are highly localized. The time a startup might spend building relationships in a specific market could yield more or less value depending on whether the founders intend to operate in that market long term. Optimal fit may also be influenced by factors that can be more difficult to discern, such as culture and the philosophies of program leadership, the level of mentor engagement, and the broader network of advisors that an accelerator maintains.

Understanding the differentiation among programs can help founders, investors, and industry stakeholders optimize the fit between a given program and its portfolio of startups.

As new commercial seed accelerators sprout, specialization and market ties are increasingly important considerations as well. Tigerlabs Health is an example of a new program that is maintaining the core features of a commercial seed accelerator model, while emphasizing interest in startups that are relevant to a specific sector. Although Tigerlabs has broad interest in digital health startups, the program intends to capitalize on its proximity and strategic relationships with large pharmaceutical companies located in the New Jersey "pharmaceutical corridor." During the program, pharmaceutical firms, as well as health plans and provider organizations, will provide participating companies with direct, ongoing access to experienced staff in relevant business units.

With a focus on the pharmaceutical sector as both a supplier of capital and potential partners or customers for program graduates, Tigerlabs Health demonstrates the potential for new health accelerators to create synergies through sector-based specialization and alignment.

Tigerlabs Health
www.tigerlabs.co/health

Tigerlabs Health was launched in September 2012 by Tigerlabs, an "entrepreneurship center" in Princeton, NJ.

The program maintains a deep roster of investors, entrepreneurs, and operators that will serve as speakers, mentors, and advisors.

Tigerlabs Health intends to capitalize on the concentration of life sciences companies, medical institutions, and talent in the New Jersey "pharmaceutical corridor."

Location	Princeton
Structure	3-month residency; demo day; rolling admissions; 10–20 companies per year
Capital	$20,000 convertible note
Focus	Concept to series A digital health companies with an emphasis on concepts relative to pharmaceutical firms
Market Ties	Merck Global Health Innovation Fund is a program sponsor Strategic ties to pharmaceutical companies, payers, and providers would enable ongoing access to experienced operators in order to augment guidance from an extensive network of mentors

Market-Led Programs

The New York Digital Health Accelerator (NYDHA) represents a notable evolution of the health accelerator model that emerged in 2011. NYDHA's program combines a narrow focus on providers and a defined set of technology areas that are highly relevant to a specific marketplace. Each company was selected based on its potential to help health care providers in New York meet new "health home" requirements under the state's Medicaid redesign initiative. Moreover, providers slated to serve as potential pilot partners were involved early in the screening process, assuring a minimum level of interest in any startup accepted to the program.

During the nine-month program, NYDHA companies will receive clinical and technology feedback from senior-level executives at leading provider organizations in New York. They will also have priority access to real clinical data through the Statewide Health Information Network for New York. If they meet provider expectations, startups may receive additional funding for pilots and — perhaps more importantly — secure the type of highly visible customer relationships that are key to the success of health technology startups. Although NYDHA has yet to complete its first program, its unique combination of capital, program length, and collaboration with providers, has many people watching closely.

NY Digital Health Accelerator

www.digitalhealthaccelerator.com

The New York eHealth Collaborative (NYeC) and Partnership for New York City Fund launched NYDHA in April 2012 with the goal of helping providers in the state address needs under the new "health homes" model that is key to New York's Medicaid redesign initiative.

NYDHA's program structure and funding arrangement create an opportunity for mature startups with provider-focused tools to support care coordination, analytics, message alerts, and patient engagement.

Location	New York City
Structure	9-month residency; demo day; annual program; 8–10 companies per class
Capital	Up to $300,000 convertible note ($100,000 with potential of additional $200,000 after 4 months); potential funding for pilots
Focus	Late-seed to growth-stage provider-focused heath technology companies with at least a beta product
Market Ties	Backers include Aetna, Janssen, UnitedHealth Group, and east coast VCs Access to product development feedback and potential customer relationships with executives from 22 leading health care provider organizations in New York

Virtual Networks

StartUp Health is another program that is playing a distinct role in the ecosystem of health accelerators. As a "National Academy for Health and Wellness Entrepreneurship," StartUp Health is focused on education and peer collaboration. Although operations are based in New York City, the program is available to entrepreneurs nationally.

StartUp Health combines virtual collaboration with quarterly in-person meetings for CEOs. The program does not provide capital directly and instead earns equity over a three-year period. A rolling admissions process and the virtual nature of the program enable interaction with a larger number of companies over longer periods of time. Some founders view StartUp Health as a natural complement to other types of programs.

In January 2013, StartUp Health and GE announced a three-year program as part of GE's healthymagination initiative. Through the

StartUp Health

www.startuphealth.com

Entrepreneurs Steven Krein and Unity Stoakes founded StartUp Health in 2011 with a goal of building 1,000 sustainable businesses in 10 years.

StartUp Health provides a structured curriculum including components focused on individual founders, the team, customers/partners, marketing/strategy, and fundraising.

The combination of quarterly in-person workshops, peer collaboration, and weekly coaching is geared for companies ready to scale beyond initial pilot customers.

Location	National
Structure	36-month program; up to 100 startups per year
Capital	No direct funding; StartUp Health earns 2%–10% equity over 3 years
Focus	Seed to series B companies with technologies and tech-enabled service businesses for health and wellness
Market Ties	Partnerships with GE, AT&T, Merck, Amazon, and StartUp America; additional ties to large health care companies, including retail pharmacy chains and national payers StartUp Health Network provides an online platform to support collaboration with potential customers, partners, advisors, and investors

partnership, StartUp Health and GE will work together to provide expertise, resources, and opportunities designed to speed growth of consumer health companies.[2]

University-Affiliated Accelerators

Universities have been involved in the development and commercialization of early-stage technologies for decades. In recent years, as seed accelerators have gained momentum, university-affiliated programs have begun to appear. Program structures are similar to commercial seed accelerators, though university-affiliated programs typically do not take equity or provide capital directly. Stanford-affiliated StartX

StartX Med

startx.stanford.edu

StartX alum Divya Nag founded StartX Med in January 2012 to address unique needs of medical startups — such as access to lab facilities, specialized education, and commercialization of university-originated technologies.

StartX Med provides access to mentors with highly specialized expertise across health technology, medical devices, and biotechnology/biopharma

The program is an interesting opportunity for startups with Stanford-affiliated founders

Location	Palo Alto
Structure	6-month program with potential for longer residencies; demo days; 2 classes per year; 10–12 companies per class
Capital	Potential for up to $5,000 stipend per founder; no equity or fees of any kind
Focus	Concept to series B, across the full continuum — from biotechnology to digital health
Market Ties	Access to testing and pilot opportunities through StartX Med advisors Strong affiliation with the Stanford School of Medicine, including close working relationships with Stanford Hospital and Lucile Packard Children's Hospital

and Skydeck at University of California, Berkeley, are among the best known of these programs in the US.

StartX Med grew out of the general StartX program in early 2012 to focus on the unique needs of medical startups. The program has made important changes, such as extending the term from three to six months, while retaining key features of StartX, including the lack of any fees or equity transfer. The program's broad interest in innovation across the entire health technology continuum, from biotechnology to digital health, makes StartX Med attractive for startups with a Stanford-affiliated founder — a requirement for acceptance — that are working on more complex and highly regulated medical technologies.

In October 2012, the University of Southern California's Center for Body Computing announced that it would be creating its own digital health accelerator in Los Angeles.[3] Industry experts expect that other universities will launch health-specific programs in the near future. In the meantime, StartX Med provides an example of how a university-affiliated program can leverage significant assets and expertise through strong relationships to faculty, researchers, and medical institutions.

IV. Beyond the Hype: Challenges and Progress

Challenges for Accelerator Models in Health Care

Since emerging in 2011, health accelerators have attracted significant attention and their merit has become a subject of public debate. While advocates point to the potential for accelerators to help surface new health technology innovations that can address big challenges in health care, some experts remain skeptical about how effective an accelerator model can be in health care. Critics have warned that incubators and accelerators are operating in a bubble in general, and question whether new programs can create the same degree of financial value that top programs, such as YC and TechStars, have achieved. There is added concern that the complex and entrenched health care environment is not well suited for the type of rapid, iterative approach to startup development that has been successful in the Internet and mobile sectors.

Experts interviewed for this report identified several inherent challenges for accelerator models in health care that startups, investors, and health accelerators should consider.

Volume-driven model. High throughput is a generally accepted feature of the seed accelerator model. However, some experts caution that it will be important for health accelerators to find a balance between quantity and quality. “Trying to get a lot of ideas packaged for funding, instead of identifying the small number of businesses that are more likely to be sustainable, undermines the process of natural selection,” said Lisa Suennen, co-founder and managing director of Psilos Group Managers, a health care investment firm.

According to Bradley Fluegel, chief strategy officer of Walgreen Co., sharpening the selection process is also important because of the path that lies ahead for health technology companies. “There have been some good exits in health IT in the last few years, but we are early in the consolidation trend — the market is still fragmented and slower than the traditional technology space,” said Fluegel. “It’s unlikely that you can place bets on 100 health IT startups and expect that one or two will balance out the portfolio with a billion dollar IPO in a few years. Even the most promising companies still have a lot of work ahead of them,” he added.

Concepts ahead of the market. Health accelerators are attracting an increasingly diverse pool of applicants. Still, many of the companies that have been accepted to health accelerator programs thus far have attempted to target consumers directly or rely on nascent models for value-based payment. Anne DeGheest, founder and managing director of HealthTech Capital, considers this to be a potential sticking point for health accelerators and startups applying to the programs. “The challenge with consumer-focused companies is that the revenue models for these markets have not been proven yet,” said DeGheest. “Companies looking at the needs for value-based care may also be ahead of their time. The entrepreneurs are trying to validate their business value proposition in a few months; but it is going to take time and money to collect hard evidence to sell the providers in an environment that is shifting away from fee-for-service into a still poorly defined capitated system,” she added.

Needs beyond the mentor network. Accelerators place significant emphasis on building their mentor networks. However, participants often have little or no prior experience in the health care industry, resulting in needs beyond strategic guidance. Michelle Snyder, an executive in residence at InterWest Partners, suggested that companies would benefit from more interaction directly with their customers, not only the mentors. "Mentors provide helpful advice, but companies also need to get much closer to people purchasing and/or using their products — they really need to spend a week in the life of their customer," said Snyder. Rich Roth, vice president of strategic innovation for Dignity Health, echoed Snyder's sentiment. "Tying companies into the right relationships is key," said Roth. "It is crucial for founders to gain an understanding of the realities of actual operating environments — working with real-world data and dealing with payment."

When a product is not a business. Another concern about the current environment of health accelerators is that there may be insufficient focus on identifying when a team of founders has created a compelling product — or even a valuable feature — but not a viable business. While some might consider this to be a negative distinction, both health accelerators and founders alike can benefit from recognizing the bifurcation early on. "The best pathway and decisions for startups are likely very different based on whether there is a product or a viable company at issue," explained Tom Vanderheyden, vice president of business development at UnitedHealthcare. "Accelerators could be valuable to founders by helping them think though whether a larger company might be a natural acquirer of a product or intellectual property, rather than forcing a business," he said.

More time and capital needed. A common sentiment from interviewees was that the typical technology accelerator model of three months and $20,000 is insufficient for startups in health care because of factors such as channel complexity and long sales cycles. "The Internet has democratized distribution channels — the Y Combinator tech model has capitalized on that well," said Mohit Kaushal, MD, chief strategy officer and executive vice president of business development at West Health. "The established channels in health care are more difficult and less readily displaced, so it will be difficult to run through the same model," Kaushal explained.

"As we start to see health tech startups 'accelerator hopping' through YC, Rock Health, and StartX Med, it makes a strong case not only for more capital, but for more time as well."

Missy Krasner, an executive in residence at Morgenthaler Ventures, also points to the phenomenon of companies beginning to go through multiple accelerator programs as an indication to the market that health technology startups need more time and money to mature their businesses. "The leading technology accelerators have taken steps in the last two years to create direct access to more capital from angels and VCs upon acceptance to the program," said Krasner. "As we start to see health tech startups 'accelerator hopping' through YC, Rock Health, and StartX Med, it makes a strong case not only for more capital, but for more time as well," she added.

Early Indicators of Progress

Despite concern about the long term viability of the accelerator model in health care, the initial wave of health-specific seed accelerators are showing signs of progress.

Recent attempts to evaluate technology accelerators in general have focused on factors such as total estimated value of the portfolio, percentage of graduates that obtain funding, the size of a program's alumni network, and reputation among venture investors.[4,5] In April of 2012, Forbes estimated the collective value of YC companies to be $7.8 billion.[6]

While it is too early in the development of health accelerators to assess programs according to similar metrics, information shared by the initial wave of health-specific seed accelerators offers insight into post-program funding and commercial progress among some of the first health accelerator alumni.

Post-program funding. Helping founders prepare to raise additional capital is a top priority for health accelerators. As of January 2013, Blueprint Health, Healthbox, and Rock Health reported that their portfolio companies had collectively raised more than $40 million in post-program funding. While inaugural classes from StartX Med and NYDHA had yet to graduate at the time of reporting, participants could already lay claim to approximately $15 million and $5 million in funding, respectively.

Among the startups that have raised follow-on funding thus far, several companies raised post-program rounds of more than $1 million, with participation from notable investors and firms such as Yuri Milner, Bessemer Venture Partners, and Khosla Ventures. Blueprint Health also reported an encouraging success rate overall, noting that more than 80% of class participants seeking funding have been able to raise capital coming out of the program.

Some startups do not immediately attempt to secure additional equity financing when they leave an accelerator program. This strategy allows founders to retain control over future company direction and avoid further dilution at a time when the company's valuation will be limited. According to Rock Health CEO, Halle Tecco, several of Rock Health's companies — including Skimble, a mobile wellness app that now boasts more than 10 million downloads — chose not to raise money and have since become profitable.

Commercial progress. While follow-on investment is an important hurdle for accelerator graduates, pilots and highly visible customer relationships can be equally crucial to the success of health technology startups. In some cases, an accelerator can be the key to making an otherwise obscure technology startup relevant to key players in the health care industry. As of January 2013, Blueprint Health, Healthbox, and Rock Health all reported positive commercial activity among graduates, including multiple pilots in progress and customer relationships that are generating revenue. According to Healthbox founder, Nina Nashif, nine of 10 companies included in the first Chicago cohort have started generating revenue, along with securing 17 new pilots and 11 new partnerships. Further, six companies from the Healthbox Boston program that concluded in November 2012 have already signed on for one or more pilots or partnerships.

StartX Med also reported that one-third of its participants are already generating revenue and at least 14 hospital pilots are underway involving thousands of physician users.

Value Beyond Financial Returns

It will be several years before health accelerators can be fairly judged using measures such as portfolio valuation. In the meantime, supporters suggest that health accelerators are generating near-term value beyond financial returns.

Table 1. Examples of Post-Program Financings in Excess of $1 Million

MILLIONS	COMPANY	TECHNOLOGY / BUSINESS	PROGRAM
$3.8	Sano Intelligence	Building a small, wearable sensor that can capture and transmit blood chemistry data continuously to virtually any device	Rock Health
$2.8	drchrono	Medical platform for doctors and patients, offering iPad-based EHR and patient portal applications, as well as Web-based medical billing	Rock Health
$2.5	Agile Diagnosis	Web and mobile apps for doctors and nurses at the point-of-care to help accurately and efficiently diagnose and manage their patients	Rock Health
$1.1	CellScope	Uses optical attachments to turn smartphones into a diagnostic-quality imaging systems for health care, consumer skin care, and education	Rock Health
$1.1	Procured Health	Web-based application that helps hospitals discover, evaluate, and adopt high-value medical devices	Blueprint Health

Note: Several portfolio companies from Healthbox and Rock Health that secured post-program rounds in excess of $1 million requested to keep the details of their financing private.

Visibility. As with other types of technology, accelerator programs, investors, and large companies can benefit from health accelerators by gaining early visibility into new concepts and a broad pipeline of potential future investments. In cases where programs coordinate convertible debt financing outside of a traditional limited partnership structure — as Rock Health has done with Aberdare Ventures, Kleiner Perkins, the Mayo Clinic, and Mohr Davidow — investment partners gain deeper influence and preferential access to future rounds of investment. Large companies can also derive value from visibility into where financial investors are placing bets by using this insight as a form of market intelligence.

Ecosystem. Strengthening the ecosystem of support for early-stage health technology companies is an additional form of value that health accelerators provide. Initiatives such as Rock Health's recently announced Angel Group — a program to help health professionals become angel investors — and the annual Health Innovation Summit, as well as StartUp Health's online platform, the StartUp Health Network, offer examples of how health accelerators are building community. These efforts create venues for founders to learn and connect with customers, partners, and financiers, including non-traditional health IT investors and angels that are relatively new to the market.

Talent. Health accelerators can also serve as a magnet for strong technical founders and entrepreneurs with limited health care experience by providing education and offering a platform to move from idea to product. Supporters of the health accelerator model suggest that enabling these types of smaller experiments will ultimately help to channel talent toward larger challenges in health care, regardless of what occurs during the brief program period. For example, a team of data scientists with no previous health care experience may fail in their attempt to launch a health analytics startup, yet still develop a long term interest in potential uses of predictive analytics for disease prevention and personalized medicine.

V. Perspectives from the Market

LEADING COMPANIES AND INVESTORS IN health care want to see accelerators succeed in the long run. With this shared goal in mind, interviewees shared perspectives from their vantage point — as investors and executives in residence, provider organizations, health plans, life sciences companies, and accelerator participants — on opportunities for health accelerators and participants to improve their chances of success.

Experts' Recommendations for Programs and Participants

INVESTORS AND EIRS

- Focus on fundamentals
- Leverage specialization and alignment
- Identify the right post-program path

PROVIDER ORGANIZATIONS

- Emphasize workflow
- Focus on cost savings
- Facilitate deeper collaboration

HEALTH PLANS

- Tackle payment early
- Prioritize integration
- Recognize the value of strategic investors

LIFE SCIENCES COMPANIES

- Look beyond the balance sheet
- Facilitate access to regulatory guidance
- Navigate complex organizational structures

ACCELERATOR PARTICIPANTS

- Intensify focus on angel investors
- Prioritize tactical and tangible connections
- Emphasize the importance of program fit

Investors and Executives in Residence (EIRs)

Focus on fundamentals. Health accelerators can provide benefit to startups and investors alike by generating attractive opportunities — deal flow — for early-stage investors. However, Anne DeGheest of HealthTech Capital suggests that investment groups such as hers see a need for stronger attention to fundamentals from both accelerators and program graduates. "Our goal would be to look at 10 high-quality opportunities each month instead of 60 companies," she said. "Right now, we see very mixed results from companies on core questions every investor is going to have: what pain point a product addresses, how the business model will generate profits, the size of the market, and what level of validation has been conducted," she added.

Leverage specialization and alignment. Investors and EIRs view specialization and tighter alignment with partners as a natural opportunity for health accelerators to increase value. According to Lisa Suennen, narrowing focus to companies in a specific sector or aligning company selection with particular interests of a program's strategic investors could be effective strategies. "Specialization could create a powerful network effect. If the market is also invested, then incentives are aligned," said Suennen.

Identify the right post-program path. One consequence of VC involvement in financing accelerator programs and demo day participation is a potential stigma for companies that do not raise money from VCs directly out of a program. As a result, founders sometimes move directly from a program to pitching VCs without considering whether alternative paths may be more valuable, considering the investment and timeline for an IPO or acquisition that VCs typically seek.

Investors indicated that health accelerators can help companies manage expectations more effectively, as well as consider alternative paths to VC investment, such as product acquisitions or angel investment. "I think there are going to be some very good opportunities coming out of accelerators for angels and smaller funds in the next three to five years," offered Michelle Snyder of InterWest Partners. "Some founders need help to recognize when the economics won't work for traditional VCs due to fund size, market size, or exit hurdles," said Snyder.

Provider Organizations

Emphasize workflow. Providers noted that one of the most important opportunities for health accelerators is to help startups recognize the importance of clinician workflow. Products are unlikely to get traction if they do not anticipate the contexts in which they will be used and interaction with other systems, as well as operational issues such as coordination across clinical teams. "Our providers simply won't use a new technology if it doesn't fit into their workflow, explained Rich Roth of Dignity Health. "The challenge is that many young entrepreneurs have both feet outside of health care — this is one of the reasons we started working more closely with some companies on our own," he added.

Focus on cost-savings. Hospitals have served as a prime destination for new innovations in medical technology for half a century. Today, however, hospitals face increasing pressure to reduce cost as a result of reductions in reimbursement and the effort to redistribute the provision of care to lower-cost settings. According to Michael Aratow, MD, chief medical information officer at San Mateo County Medical Center, it is important for health accelerators to help steer startups toward opportunities for improving efficiencies and reducing cost. "Some companies need a better understanding of the current financial climate in hospitals," said Aratow.

Facilitate deeper collaboration. David Cohen, MD, vice chair of medicine and executive vice president of clinical affairs and affiliations at Maimonides Medical Center in Brooklyn, New York, offered that having longer, more integrated interactions with providers is another opportunity for health accelerators to help startups succeed. "It is important for companies to understand the true needs of providers. As a clinician, the last thing I need is more data — what I need is actionable information," Cohen explained. "With longer, more integrated interactions, there can be real collaboration with companies," he added.

Health Plans

Tackle payment early. Accelerators and startups are both excited about breakthrough ideas. Yet both may risk focusing too heavily on disruption, without confronting the realities of payment. As a result, health plans see a need for accelerators to help companies place more focus on how a company will make money, and the mechanics of payment.

Prioritize integration. Health plans also see an opportunity for startups to focus on connectivity and integration, not only in terms of data, but also with the people and processes at work in health care. Tom Vanderheyden of UnitedHealthcare notes that "companies would benefit from a deeper understanding of and emphasis on connecting to the workflow of providers, the lifestyle of members, and the payment and processing flow of the payer."

Recognize the value of strategic investors. While venture capital firms and angel investors play significant roles in funding health accelerators and their graduates, health plans think it is important for companies to understand the advantages that strategic investors have over traditional early-stage financial investors. “Strategic investors have significant access to customers and the potential to leverage technologies internally,” explained Rachel Winokur, head of business development, emerging businesses, at Aetna. “Health plans also have the ability to capture value from products that generate indirect benefits — it is a very different value proposition,” she added.

Life Sciences Companies

Look beyond the balance sheet. Startups may be drawn to pharmaceutical and medical device/diagnostics companies because they generally have significant cash on hand and are increasingly in search of innovations that support diversification of their business models. According to Wendy Mayer, vice president of worldwide innovation for Pfizer, accelerators can help founders think beyond the balance sheet in order to better understand the intricacies of businesses in the life sciences industry. “Digital communications is an example of an area where we have a strong interest in innovation, but see a need for deeper understanding of our business,” said Mayer. “In this case, it would be important for startups to understand not only the potential opportunity for digital as a channel, but also the standards and constraints for what we can communicate about a product,” she explained.

Facilitate access to regulatory guidance. Most accelerators will avoid medical devices/diagnostics companies due to the costs and time typically required to develop and bring products to market. However, life sciences companies see an important opportunity for accelerators to help startups in emerging areas, such as mobile medical applications, to build stronger relationships early in the development of new products. “Many good concepts die on the vine because founders pick the wrong regulatory pathway and lack sufficient capital to reach a stage of maturity where large companies can evaluate them seriously,” noted William J. Taranto, managing director of the Merck Global Health Innovation Fund. “Through deeper relationships, life sciences companies can help founders much earlier in the process to potentially avoid common pitfalls.”

Navigate complex organizational structures. The complexities of product development, regulatory approval, and reimbursement for life sciences companies also translate into intricate organizational structures that can be difficult for startups to decode. As a result, facilitating connections to the optimal business unit or expert is another important role that life sciences companies see for accelerators. “Startups need help to understand and navigate the structure of organizations they may want to partner with in the future,” said Kevin Noble, senior director of interactive marketing at Genentech. “IT is often considered the key touch point for health technology startups, but it can be incredibly valuable to get connected into other areas of our business that may be less familiar, such as those that focus on access,” Noble added.

Accelerator Participants

Intensify focus on angel investors. Demo days attract scores of venture capitalists. Yet, many accelerator graduates emerge at a stage where angel investors remain a logical target for post-program funding. Graduates note that accelerators can help improve access to capital before a traditional level of VC financing is plausible by intensifying focus on angel investors and continuing to build on efforts such as the Startup Health Network and Rock Health’s Angel Group. “The programs have been excellent at attracting VCs, but founders need greater participation from angel investors,” noted Victor Gane, PhD, founder and CEO of DermLink. “While connections to the VC community are important in the long run, angels will often still be the near-term target," said Gane.

Prioritize tactical and tangible connections. Although strategic mentorship is a valued pillar of the accelerator model, graduates emphasized the additional need for access to specialized expertise. "Startups often need highly specific, tactical advice on a short timeline," said Adrian James, co-founder and president of Omada Health, a Silicon Valley startup that built the first online diabetes prevention program for the public, based on the landmark Diabetes Prevention Program clinical trial. "Ideally, founders would be able to quickly pin down an expert in the field or tap an entrepreneur for advice who is one step ahead of them in the same domain." James's co-founder and CEO of Omada Health, Sean Duffy, noted that founders would benefit from an equal focus on pilot partners. "The entrenched and conservative nature of the health care industry makes pilots difficult to secure," Duffy explained. "Given the importance of small pilots and deployments for the success of a startup, tangible connections to more potential pilot partners would be very impactful."

Emphasize the importance of program fit. As more health accelerators appear, graduates see an opportunity to help future applicants make strategic decisions about program fit. Alan Blaustein, a serial entrepreneur and co-founder of CarePlanners, a company that helps caregivers and patients simplify and navigate the health care system, suggested that startups need to think strategically when considering an accelerator, particularly if they are giving up equity. "In our case, StartUp Health provides the right community and access to trusted advisors over a period of time in which we believe we can realize significant value," said Blaustein.

For healthfinch, a startup that develops cloud-based decision support tools that integrate with EMRs to improve physician productivity, the allure of accelerators was based on both funding and relationship building. While healthfinch was excited to be accepted to Healthbox, the company concurrently received a significant funding offer from health care-focused investors. "It was a tough decision, but we decided that our connections were strong enough to avoid extra dilution at the valuation seen in accelerator programs," said Lyle Berkowitz, MD, healthfinch chairman and chief medical officer. "It's important to recognize that the value of a specific health accelerator can be very different for each company. While it wasn't the right fit for us at the time, an accelerator program could be critically important for startups when there is a good fit."

Understanding the value of participation in multiple programs and specific sequencing is also viewed as an important opportunity. Russell Graney, founder and CEO of Aidin, a startup that created a Web app to connect hospital discharge planners and patients with the best-performing post-acute care providers, emphasized that understanding the value proposition and key differences between programs was fundamental in the decision to pursue both Blueprint Health and NYDHA. "We recognized that Blueprint would be a perfect environment to evolve the idea, formulate the business, and get our pitch ready," said Russell. "Coming out of Blueprint, what we needed was access to customers — that is why we pursued NYDHA."

Venkat Gullapalli, MD, founder and CEO of Medikly, a startup that helps pharmaceutical brands better reach, engage, and understand physicians, also targeted two programs based on complementary value propositions. "We viewed Blueprint as a potential opportunity to jumpstart our pivot to a software-as-a-service business model, while looking at Startup Health as a solution for consistent support over a longer period of time," explained Gullapalli.

VI. The Future of Health Accelerators

Continuously Evolving

Startups accepted to YC and other highly regarded technology accelerators routinely "pivot" — alter their ideas or products — during the course of the program. In some cases, founders who pivot decide to pursue an entirely new business idea partway through a 90-day session. This new philosophy of experimentation has gained traction with founders and investors alike because they both recognize the value in rapidly testing and improving ideas with feedback from the market. While it is still early in the life of health accelerators, developments suggest that they are already iterating themselves and evolving program models to address some of the challenges for accelerator models in health care.

In 2012, Healthbox and Rock Health both took steps to bring companies closer to the market by partnering with health system leaders to launch programs in Boston. BlueCross BlueShield of Massachusetts (BCBSMA) served as the anchor for Healthbox's program. Through its partnership with BCBSMA, Healthbox was able to provide companies with access to expert mentors from a large and innovative health plan in a unique market environment.[7] Rock Health's Boston expansion consisted of a three-month summer program with Harvard Medical School that enabled companies to test products in partnership with experienced clinicians and medical staff.[8]

Following in the footsteps of YC and TechStars, Rock Health changed the amount and structure of funding available to companies accepted into its fall class in San Francisco. Instead of a $20,000 grant, Rock Health companies now receive $100,000 in convertible debt from venture capital partners, Aberdare Ventures, Kleiner Perkins, the Mayo Clinic, and Mohr Davidow. Some expect that other health accelerators will take similar steps to offer additional capital in the near future.

Tigerlabs Health and NYDHA offer examples of how new programs are iterating on the seed accelerator model in ways that range from sector-based specialization to significant changes in program structure and funding arrangements, as well as establishing tighter integration with the market.

Looking Ahead

Nearly all experts interviewed for this report expect that the number of health accelerators will grow in the near term as investors and large companies continue to seek visibility into startup activity. New accelerators will likely take root in different places and experiment with variations on the seed accelerator model. Existing programs may also expand to additional cities, as has already begun to occur with Rock Health and Healthbox.

Most interviewees posited that new health accelerators will continue a trend toward specialization as they attempt to differentiate from existing programs. More programs will likely focus on building deep financial and strategic ties to specific marketplaces, as NYDHA has done in New York. Given the finite capacity that providers and health plans have to take on pilots and interact with early-stage companies, strong market ties will be an important factor in determining which programs survive in the long run. Several experts also expect to see growth in university-affiliated accelerators. StartX Med may be well positioned to play a significant role given a 2012 grant from the Kauffman Foundation to support expansion and national scaling of the StartX program.[9]

The partnership between StartUp Health and GE is likely indicative of a new class of strategic corporate programs that could emerge through partnerships and outgrowths of product-specific initiatives at large technology and consumer products companies.

As the landscape of health accelerators experiences growth and diversification, founders will routinely consider the opportunity to progress through multiple programs. This pathway will become more common not only because companies need more time and capital in general, but also because the value that accelerator programs provide could become increasingly differentiated and complementary as programs continue to specialize.

Realizing the Promise

Health accelerators are still nascent players in a large and entrenched industry. In the future, as accelerators and their graduates mature, founders and financial sponsors will be able to assess performance using metrics such as financing obtained and portfolio value over time. To realize the promise of health accelerators, however, programs and industry stakeholders will need to collaborate to overcome inherent challenges for the accelerator model in health care and enable the model to evolve.

In navigating these challenges, perspectives from the market suggest that stakeholders should consider five key opportunities to maximize the value of health accelerators.

Bring health experts in-house. Mentors provide valuable guidance on a periodic basis and founders indicate that consistent access to experts in other disciplines has proven to be valuable. What is missing from the equation in some cases is a resident health care expert who can bridge the gap between speaker sessions and daily challenges when founders are immersed in developing their business. Enabling an executive in residence or fellow with deep health care expertise to work consistently with portfolio companies on-site could provide significant value for health accelerators and their participants.

Confront the difficult questions. Startups and accelerators should consider the mutual value of focusing intently on the business model and questioning whether an innovative product can support a viable business. As accelerator graduates seek post-program funding, the ability to answer fundamental business questions — what problem a product addresses, opportunity size, and how a company will make money — will become more important than a sleek user interface. Without clarity on these points, startups will be hard pressed to secure follow-on funding. In the process, some companies may discover that their product could have value for a larger company, but will be difficult to leverage into a viable standalone business. This distinction is not inherently negative, but it may suggest a pathway other than pursuing venture capital.

Create market synergies. Strategic financial sponsors and accelerators should consider the value of specialization and collaboration for driving alignment among startups, mentors, and the market. Focusing on a specific sector, customer type, end user, or technology platform, are all potential strategies that can generate powerful network effects. Specialization may also make it more efficient to focus on specific challenges, such as clinician workflow integration. Another approach to maximize value could be shaping selection criteria and program structure based on sponsors' specific assets, capabilities, and market environment.

Define clear endpoints. Accelerators and potential partners should consider working closely together to identify specific business problems for startups to address in a particular market. One of the features that makes NYDHA unique is its narrow focus on specific technical capabilities that stem from the needs of provider organizations under Medicaid reform in New York State. A clearly defined objective such as this can provide significant advantages over the more traditional accelerator approach of selecting interesting concepts and attempting to test market viability. While NYDHA is focused on relatively mature startups, a similar strategy of built-in demand and more narrowly defined endpoints could be valuable at all stages of development.

Tailor programs for stages of development. Health technology startups have a wide range of needs depending on their stage of development. Founders that are germinating an idea may need industry education, strategic guidance, and better insight into the needs of their potential customers/users. Startups with working products are more likely seeking pilot partners, reference customers, and seed capital, while maturing companies need access to new customers, channel partners, and more substantial capital to support commercial growth.

Health accelerators and industry supporters should consider the opportunity to create program models that are tailored for the needs of founders with limited health care knowledge and mature startups that are ready to scale. A pre-seed health care primer would allow potential founders to quickly gain fundamental industry education and help inform future concepts. Health accelerators could then contemplate longer and better capitalized seed programs, allowing for added selectivity and more in-depth collaboration with strategic partners. Further, market-led programs might be complemented by corporate accelerator programs that offer longer-term relationships, robust go-to-market support, and deeper interactions with experienced operators.

Aligning program models with specific needs at each stage of development can help optimize fit between programs and participants. Program leaders, investors, and industry representatives could also benefit from actively promoting the strategic value of program sequencing as startups attempt to move from concept to the market.

Appendix: Interviewees and Contributors

NAME	TITLE	ORGANIZATION(S)
Rachel Winokur	Head of Business Development, Emerging Businesses	Aetna
Russell Graney	Founder and CEO	Aidin
Mudit Garg	Founder	AnalyticsMD
Brad Weinberg, MD	Co-Founder	Blueprint Health
Alan Blaustein	Founder	CarePlanners
Victor Gane, PhD	CEO	DermLink
Rich Roth	VP, Strategic Innovation	Dignity Health
Kevin Noble	Senior Director, Interactive Marketing	Genentech
Nina Nashif	Founder and CEO	Healthbox
Lyle Berkowitz, MD	Chairman and Chief Medical Officer	healthfinch
Anne DeGheest	Founder and Managing Director	HealthTech Capital
Bradley Gilbert, MD	CEO	Inland Empire Health Plan
Michelle Snyder	Executive in Residence	InterWest Partners
David Cohen, MD	Vice Chair, Medicine & EVP, Clinical Integration & Affiliations	Maimonides Medical Center
Steven J. Davidson, MD	SVP & Chief Medical Informatics Officer	Maimonides Medical Center
Venkat Gullapalli, MD	Founder and CEO	Medikly
William J. Taranto	Managing Director	Merck Global Health Innovation Fund
Missy Krasner	Executive in Residence	Morgenthaler Ventures
Anuj Desai	Director, Business Development	New York eHealth Collaborative
Scott Staywell	Corporate Development	NuMedii
Sean Duffy	Co-Founder and CEO	Omada Health
Adrian James	Co-Founder and President	Omada Health
Wendy Mayer	VP, Worldwide Innovation	Pfizer
Lisa Suennen	Co-Founder and Managing Member	Psilos Group Managers
Halle Tecco	Founder	Rock Health
Michael Aratow, MD	Chief Medical Information Officer	San Mateo County Medical Center
Unity Stoakes	Co-Founder	StartUp Health
Connie Chen, MD	Health IT Strategist/ Evangelist	StartX Med
Divya Nag	Founder	StartX Med
Andrew Lee	Co-Founder	Stem Cell Theranostics, StartX Med
Bert Navarette	GM and Managing Partner	Tigerlabs Health
Tom Vanderheyden	VP, Business Development	UnitedHealthcare
Michael Monson	Former SVP, Performance & Innovation	Visiting Nurse Service of New York
Bradley Fluegel	Chief Strategy Officer	Walgreen Company
Mohit Kaushal, MD	Chief Strategy Officer and EVP, Business Development	West Health

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