Good day everyone. Thank you, Tyler, very much. Thanks for joining us. We appreciate very much you sharing your time with us and we're especially proud and grateful that Carrie Ivers from The Advisory Board is joining us today as well.

Next slide please, Tyler.
There's all of our contact information. Would you back up one slide there, please so folks can copy that. Welcome to connect with all of you and please reach out to us afterwards if you have any questions or anything at all. There's a lot of material today, so we anticipate the need to have some followup meetings to you on a greater detail and on a more personal basis. So don't hesitate to reach out to us and schedule those followup meetings.

Next slide...

**Agenda**

- Dale Sanders: 35 minutes
  - Description of the 12 Criteria for Population Health Data Management

- Carrie Ivers: 25 minutes
  - Description of Crimson's capabilities and strategy related to the 12 Criteria

- Q&A
  - We will stay online as long as it takes to answer all the questions
So the agenda today, I'll spend about 35 minutes describing the 12 criteria that I developed to help you evaluate vendors and develop internal organizational strategies. Then Carrie will spend about 25 minutes talking about Crimson's capabilities and strategy related to those 12-Criteria. The Q&A session is going to go past the hour and we will stay online as long as it takes to answer all of those questions.

Next slide...

Our Philosophy

Just to give you an idea of our philosophy around these webinars, we believe that educated HIT consumers are the best consumers for all of us in the country. It leads to higher expectations from us to vendors, which leads to better products. And if we're doing our job right, that should lead to lower costs and better healthcare. And that circle is one philosophy that we embrace very heavily and The Advisory Board is of the same vein. A lot of people have asked, you know, thought it was kind of unusual that The Advisory Board and Health Catalyst, who might be competitors, are on these webinars together but it's all based around this philosophy, and we welcome the spiral and we welcome the challenge of those higher expectations. So thanks for joining us and we hope that we live up to this philosophy.

Next slide please...
The Supporting White Paper

The supporting white paper for today’s webinar can be found out on the web and you can find it easily by googling 12-Point Review of Population Health Management Companies. Our marketing team branded it Landmark paper. I’m not so sure that I would have given myself a landmark designation but I appreciate the marketing team doing that.

Next slide please...

Overview and Purpose

So in overview what we're going to focus on today is the data management of Population Health Management, not the processes of Population Health Management, although the reality
is data management and the processes are inextricably linked. I’m not going to talk about activity-based costing and fixed price contract management. That's going to be a separate webinar and separate whitepapers. Very interesting topics in and of itself but we will not talk about that today.

And the motive that I have and the purpose I have behind writing this paper, which actually originated when I was associated with The Advisory Board, my original thought on this topic, were to give folks a framework for evaluating IT vendors and their PHM offerings – because every IT vendor is claiming that they can offer a Population Health Management Solution. But yes, when you really think about the complete set of criteria, virtually no vendors can offer a complete solution right now. So the idea was to put some truth back into what vendors are saying n PHM and also to help organizations develop their own internal strategies and roadmaps for PHM as it relates to Accountable Care.

Next slide...

Poll Question
On a scale of 1-5, where do you feel your organization is in its Population Health maturity?

- 5 – Very high maturity
- 4
- 3
- 2
- 1 – Little or no maturity

So Tyler has a poll question here to see where we think we are as an industry. And if you can just choose on a scale of 1 to 5, where do you think your organization is in its practice of Population Health? How mature are you in organization.

[Tyler Morgan]
Alright. We've got that poll live and we've got folks answering it. We'll leave this poll up for another 5 to 10 seconds or so to give people the opportunity to answer it and then we will share the results.
[Dale Sanders]
One of the things I always ask in these polls is that the folks that have high maturity, we'd love to sponsor discussions and webinars and develop an exposure of your knowledge in the industry. So please reach out to us if you feel like you're in that very high maturity category so that others can learn from you.

Poll Results

[Tyler Morgan]
Alright. We're going to go ahead and close the poll now and let's share the results. Dale, it looks like we have a 3% that are in the very high maturity, with a 9% that rate themselves at a 4, 25% at 3, 36% at 2, and 27% at little or no maturity.

[Dale Sanders]
Very interesting. Thank you. Thanks everyone.
Today's Key Takeaways

- The ROI of Population Health Management (PHM) is still in debate
  - Investment is costly, returns are challenging
  - 40% of healthcare is patient lifestyle related
  - Focus on the highest ROI areas of PHM for now
- Stratifying population risk makes no sense without a strategy for intervention
  - And focusing on the highest risk patients might have the lowest ROI
- No single vendor meets all PHM needs
  - You’ll need a patchwork of solutions to fill the gaps
  - “So you offer PHM, eh? OK, which parts?”

So a couple of key takeaways today. The ROI of Population Health Management is still in debate and we'll talk a little bit more about the cost later on but it's expensive. And the returns are challenging to quantify, the challenging to fine, especially given that about 40% of healthcare is patient-lifestyle related, the cost. Focus on the highest ROI areas of PHM for now is the key takeaway and I’ll talk about it a little bit later. But what you would think would be the highest ROI areas of Population Health Management are not as high or is not as obvious as you might initially think. Stratifying the population risk, which I think a lot of people associate Population Health Management with risk stratification. They think that's probably the core function of PHM which (06:29) a lot of truth to that. It makes no sense to focus on that if you don't have a strategy for intervention. And so what I see a lot of right now is emphasis on risk prediction without risk mitigation. No strategies for intervention in a lot of care process models. And then again back to what I said earlier, there’s no single vendor that meets all of these needs.

So encourage you, if vendors come up to you and they say, "We have a Population Health Management solution", your response should be, "Okay. So you offer PHM. Well okay, which parts do you offer because we are sure right now that nobody offers a complete solution?" The bottom line is we have to patchwork our solutions together right now.

Okay. Next slide.
True Population Health Management

This is a slide from the Robert Wood Johnson Foundation, a diagram that I really appreciate. And to me it catches true Population Health Management and I think it also exemplifies why there's so much confusion in the healthcare provider realm about what Population Health Management truly is – because those boundaries between public health and healthcare delivery are becoming blurred. As a member of the healthcare delivery world, we've always focused on more or less reacting to diseases and injuries and conditions and syndromes, with the exception of a few things like vaccinations. As a healthcare delivery organization, we haven't necessarily been proactively involved in the mitigation of health risk factors. We have generally (08:11) that to the Public Health Organizations in the cities, centers for disease control, maybe NIH. That's the world of smoking cessation programs and vaccinations and seat belts and obesity campaigns and things like that. It's not something that we've done as healthcare delivery organizations typically but we're starting to. I read the other day that Kaiser now has 50 farmer's markets and nutritional desserts in various metropolitan areas. And that's not the first. There are healthcare delivery organizations that are starting to move out into the community and starting to practice more like a traditional public health organization.

If you look at this chart, it describes and it highlights the clinical care over there on the right, clinical care only accounts for about 20% of the overall impact on Population Health Management. Social and economic factors are big at 40%, the physical environment that people live in is at 10%, and then of course all of these health behaviors at 30%. So when you really look at it, 80% of what we really think Population Health Management is about, it is attributable to things that typically we haven't been involved in in the clinical care arena. So it struck me during research for this paper and webinar that that's the reason for a lot of confusion in the market right now – because we're stretching the boundaries of our responsibility in the areas that we typically haven't engaged in the past.
So the summary message here is that we’re going to have to collaborate as healthcare leaders in politics, charitable organizations, education and business if we really want to address this entire continuum of Population Health Management.

Next slide please...

**Population Health Management**

**The Ordered Checklist for Your 3-5 Year Journey**

Before we dive into the details, this is just a quick checklist. These are the 12 criteria that I developed for evaluating vendors and also for developing your own roadmap for Population Health Management and I tried to order these in sort of the Maslow’s Hierarchy of Needs, starting with patient registry as being the most important and the most high value activity right now, and now comes the patient’s clinical outcomes as being the last. Now, that’s not because it’s the least important, it’s because it’s going to take the most time for us to develop and implement, I believe, ubiquitously throughout the industry. So it doesn’t have so much about importance as it does. We have to have time in the industry to allow these things to mature and develop and I think patient reported outcomes is probably going to be the last of those, although you could argue that #10, those complex protocols for comorbid patients is going to be very difficult as well. So that’s the notion behind the timing and the appearance of these, as there is some step-wise progression, almost like a course curriculum in this criteria.

Next slide...
So let's delve into the details here. And again, this will be the topic of a separate paper and webinar, but Precise Patient Registries is fundamental. If you don't get your patient populations nailed down accurately from the very beginning, then everything else in terms of your precision to manage risks and measure outcomes and everything else will be asked by an associated order of magnitude. A lot of patient registries right now are based around ICD codes, but I can speak from first-hand experience that we missed 30% to 40% of the population in these disease registries at Intermountain when we focused initially only on ICDs. So it has to be much more than that and the diagram shows all the different inputs and this represents kind of an ecosystem of data that feeds into these, inclusion and exclusion codes for disease registry, and the list is going to grow over time of this ecosystem of inputs. But right now these are the most common sources of data to look at and either measured directly, say through a laboratory result, whether a patient should be associated with a disease state registry, or infer through things like scheduling to an end-stage renal clinic. Even though you may not have an ICD-9 for that, you know if someone is going in for dialysis, they probably have an issue with end-stage renal.

So it's a combination of cynically known truths about the disease state, as well as inferences that feed into that engine in the middle there that's including criteria. And then of course you surround that disease registry with every little piece of data you can about cost, reimbursement, charges, patient-provider relationship in the NIC and have all sorts of different use cases for disease management outcomes, analysis research, you name it. This disease registry is going to be used for a lot of things in addition to Population Health Management. But again, we'll have a separate deeper dive on whitepaper and discussion on this topic later.

Next slide please...
One of the most important things in the development of a PHM strategy is attributing patients to providers. And this is not about attributing at the organizational level. So CMS has, you know, their attribution algorithms for attributing patients to an Accountable Care Organization. That's very different than attributing patients to a responsible physician or clinician, very different algorithms. The CMS algorithm does not allow room for debate there. But when you get into the middle of Population Health Management and you talk about holding physicians and clinicians accountable for the care of a patient, the experience that I've had is that you can make a lot of mistakes in this attribution that alienate your physicians. The last thing that you want to do is rate a physician or hold some of their fee for P payments accountable when your attribution algorithms are inaccurate or you've missed a member of the patient registry in step 1.

So spending a lot of time on these attribution algorithms and being very transparent about it with physicians is really important. And by the way, I think there's inference engines that you can do this computably but there is always the need for physicians to declare a patient inappropriate on their panel. For some reason, a patient keeps showing up on their panel, you need to give physicians a data governance process and tool that allows them to declare this patient inappropriate on their panel for whatever reason, and I'll talk about those reasons in an upcoming step here.

But here are the generally accepted options for assigning that attribution and it's a very complicated thing to do and it's brought with politics and you have to be very inclusive with your physicians and clinicians about how this has developed and give them the tools to interact with the data. Ideally, at the point of care, we don't really have that ability right now in EMRs but over time I hope we can close that loop and include disability or feed that information at the point of care back to the disease registry.
Okay. Next slide please...

Criteria 3: Precise Numerators in Registries

So speaking of adjusting the registries and the attribution algorithms, one of the big lessons learned for me in participating in this and also observing it across the country is you have to have the ability to modify the numerators in that disease registry according to particularly challenging patient situations. In the past, we called these 'exclusion codes'. In the future of Accountable Care, there's no such thing as excluding a patient unless they've passed away. You have to figure out a way to manage these tougher patients a little more proactively than we have in the past.

And so, these are in your data management, your data governance strategy. You have to have the ability to flag patients in your disease registry with these attributes. Sometimes it’s language barrier to prevent them from participating in a care protocol, cognitive inability, physical inability, economic inability, willing and informed refusal such as religious opposition, there may be medication contraindications, they may not have geographic access to care, and of course there's always the mortality issue. But you have to have a way to flag those patients in the disease registries and then you have to develop a different kind of intervention strategy for each one of these – the obvious, the language barriers, you have to have translators on staff. You have to have multilingual physicians and clinicians.

The rest of these become pretty complicated. This is where we start entering into the world of public health, and what are we going to do as healthcare providers to adjust our interventions and risk management strategies to reach out to folks who are affected by these oppositions to participating in a care protocol. So you have to bake these into your data models, in your analytics, and into your data governance processes. And again, the ideal thing is you give physicians these tools – because generally speaking the physicians and the clinicians that are
involved at the primary care level especially, they have the best ability to understand whether a patient is having a difficult time participating in a protocol because of one of these reasons. So in the EMR or either a plugin to the EMR, you need to give physicians the ability at the point of care to declare these challenging situations, so that the care management and outreach teams can adjust their strategy for outreach.

Okay. Next slide please...

Criteria 4: Clinical and Cost Metrics

Criteria #4 Clinical and Cost Metrics. Obviously these are very important. You have to have some basic set of measuring clinical effectiveness and cost, especially to be in an ACO. Measuring variability of care is really important. You have to build dashboards around the specific patients and populations of patients. Right now, unfortunately, in this area we're still kind of in the era of inaccuracy – because we're not actually measuring outcomes, we're measuring best practices in the belief that they lead to better outcomes. I think over time we're going to find that what we think are best practices are not necessarily as related to an outcome as we think they are. And then of course cost metrics right now, we really don't have a good handle in healthcare delivery about our true cost. We lack activity-based costing systems for the most part and we’re really talking about charges and reimbursements here and not really cost of operations.

So even though it's criteria #4, we have to have something to measure ourselves around in these two areas right now. We have to understand that there's a lot of inaccuracy right now in our clinical and cost metrics arena.

Okay. #5 please...
So speaking of clinical metrics, what is it that we're going to measure ourselves against? Well, we have to have a place and an infrastructure for measuring clinical effectiveness, but what are we going to measure against is the next challenging question? And that's the existence of clinical practice guidelines. We have to have that.

You know, I'm the first to agree and I'm a bit cynical about clinical trials. I've been around the data world long enough to see that published evidence is not always great clinical practice guidelines. At best, I think it applies to about 15% of patients that walk into a typical physician's office. But we still have to start somewhere. And so, but until we're better about developing clinical practice guidelines and translating clinical trials into actual practice, we have to use these and get what value we can out of them, especially around the single disease state.

In the future, as the second statement there mentions, we're going to augment the traditional forms of clinical evidence from clinical trials with evidence that's scanned locally from data warehouses and your local analytics. So in the future, imagine clinical trials evidenced with your own local evidence and then out of that emerges the evidence that's most appropriate for your clinical practice guidelines at your organization.

The last statement there, start by defining clinical practice guidelines for those patient cohorts and process families that offer the highest opportunity for improvement and cost savings. And the way that we look at high opportunity right now is the number of patients in the population times the average total medical expenditure per capita. That's an easy quick way to look at risk and it tends to be a proxy for illness and severity of disease anyway. Cost and severity of disease tend to be proxies for another. So we have to start with single disease states. Whether we like it or not, these protocols are all what we have at the moment. And I list some of the
content providers in the whitepaper that you can go through for that content in the market commercially.

Okay. Next slide...

**Criteria 6: Risk Management Outreach**

Risk Management Outreach of course is a lot of what people focus on when we're talking about Population Health Management, and this is the traditional thing of developing a risk-stratified work cue that feeds care management teams and care coaches. You know, there's a lot of debate about how effective these risk management protocols are right now in the risk stratification and we'll get better at this over time. But one of the things I talk about is the ability to predict patient outcomes is directly related to the amount of data that we collect around patients. And right now, we only collect on average about 100 Megabytes of data per patient per year. It's the calculation that I made while I was at Northwestern. That's the calculation I used in the Cayman Islands and helped through again. We don't collect much data on patients right now, and in contrast, we collect about 500 Gigabytes of data per 6-hour flight for Boeing 787. So until we start collecting more data, when patients are healthy, especially outside of the care delivery organization, our risk stratification and our risk intervention and processes will never be that good.

Next slide please...
Be Careful What You Ask For

So again, in all these slides, you need to start thinking about what are we asking of our vendors, right? So as we go through each of these criteria, you need to ask your vendors, how do you address each of these criteria? What's your response to this?

In this slide, I just mentioned that be careful what you ask for. We saw a correlation at Northwestern between the highest patient satisfaction scores with higher rates of hospital admissions, and in general, they were prescribed more medication. They had more entries on their medication list. So we didn't publish this. So we just kind of experimented analysis of data. We're not the first or only organization to see this trend. But you have to be cautious about what you see and what you ask for, and again, I think this gets back to the whole problem that we face in the future. Physicians are going to have a hard time saying no when a mother with a child with RSV is complaining and they want an antibiotic, even though that antibiotic won't touch that RSV virus. So saying no is going to be an important part of Population Health Management in the future. And if you haven't connected in and don't know about the choosing wisely initiative, I suggest everyone to take a look at that. It's a great consortium of physicians enabling that kind of dialogue.

Okay. Next slide...
So this is taken from Becker’s who pointed this to me and the folks at Connie Evashwick and Ann Scheck McAlearney at the American College of Healthcare Executives gave this at the 57th Congress on Healthcare Leadership, and I thought it was a good strategy for intervention. There are six basic intervention strategies, right? It’s around diseases. So diabetes management, catastrophic care, which is more about brain injuries, cancer and that sort of thing, managing demand so that you triage the least expensive venue, of course disability management, lifestyle management, integrated care management. These only fold into your risk management stratification process. You need to decide what kind of intervention you're going to have based upon the risks you see in your risk stratification work cues. Okay.

Next slide please...
Gordon Norman had a good comment recently in one of his blogs, the caution of paradox. So I’ll violate the presentation practice here and just read this. 

"...population strategies which focus on reducing the risk of those already at low or moderate risk will often be more effective than strategies which focus on high risk individuals at improving population health in the long run."

We saw this a little bit at Northwestern when we were just beginning the obesity management program there in which we saw a greater return on investment intervening with patients that were obese but in the low to moderate obesity category as opposed to the patients that were in the morbidly obese category. And so, a typical risk stratification algorithm would have (27:54) you immediately to those morbidly obese patients. But what we found was the return on investment, through our efforts in that category, were lower than they were than in the low to the mid-risk category. So you have to kind of think about risk management and risk stratification a little differently than most of the algorithms that are out there on the market right now because the highest risk patients may not offer you the highest return on investment.

Geoffrey Rose wrote, you know, still one of the best papers on this topic way back in 1985 but it's an excellent book or an excellent paper. I highly encourage everyone to read it. There's another book, I should have mentioned it here, written by Al Lewis, "Why Nobody Believes in Numbers." A good friend of mine, Rob (28:44), suggested this book to me just last week. I bought it, read it, and it's awesome. It talks about a lot of the fallacies at return on investment for Population Health Management. Now a lot of it is around this caution of paradox right here.

Okay, next slide...
Acquiring external data is an important part of this. Now, let me make a transition. The first six criteria are within the grasp for the market and are within the grasp of some vendors today. From 7 through 12, it gets a lot more complicated, both organizationally, technically, and culturally. So now we’re entering into the criteria that I would spend less of my time on right now, if I were an organization, and #7 is a bit of a heresy, given the emphasis we have right now on HIEs. I really think that the current national strategy to focus on HIE is misplaced. We should have been focusing on those first six areas, like accurate disease registries, better analytics around our costs and our clinical metrics, and better risk management strategy and algorithms. Because acquiring external data is a whole another level of complexity, both organizationally, as well as technically. And if you look at the time and the money involved in acquiring external data and you compare that to the value to patient care, I believe that it's a very low return on investment. So I'm not a big fan of the HIE emphasis right now. I haven't been for many years. I think we should have been focusing our national agenda on other topics.

Next slide please.
Criteria 8: Communication with Patients

We have to improve, we have to have a method for communicating with patients. And typically what we use right now are PHRs, Personal Health Records, either through an insurance provider or through an EMR vendor. And that's all well and good. It's a good first step, but they're pretty immature and they're pretty fragmented and they just definitely don't take advantage of the way people interact socially and communicate today. I really believe that we have to do something to relax or manage HIPAA differently, allow patients to decide what degree they want to communicate, with what means with their patients, rather than imposing those restrictions upon them from a HIPAA perspective. I ought to be able to opt into the open-sharing and participation of my clinical data with whoever I want to. I don't like the notion of overly applied HIPAA risk management dictating that for me – because it's excluding me from convenience like text messaging and emailing and things like that when I have paranoid CIOs at the hospital that won't allow their physicians to do that but yet as a patient I'm willing to do that. So there's a lot to evolve here and a lot of work to be done.

Next slide please...
Criteria 9: Educating and Engaging Patients

Once we have a means for communicating with patients, a PHR being kind of the beginning of that, we have to have a means for educating and engaging patients. Our current patient education system is hampered. Right now, it's not very personalized. A lot of times patients receive no education about their condition or it's so general that it doesn't apply. I've seen cases in which a low income pre-teen girl with type 1 diabetes has the same exact education material as a middle age executive man for managing type 1 diabetes and that's just ridiculous. So we have to figure out a way to tailor our education and personalize it too according to the ability for patients to absorb that information.

The Kaiser family did an analysis last year and concluded that only about 10% of the patients that are being seen today in most healthcare delivery organizations have a true autonomous ability to educate and understand themselves what to do to achieve the highest level of health. Only 10%. So in the future we have to start thinking about different ways to engage patients and I believe that Twitter, Facebook, and Amazon are all different ways that we can actually drive education towards the patient about their condition, as well as engage them in the management of their own healthcare.

Alright. Slide criteria 10 please.
ACO vs. ACP: Accountable Care Patient

Again, the question is, what are your vendors doing and what's their strategy for each of these criteria? Very important item. This is a great diagram speaking of patient education from Eric Topol. He categorized these four levels of patient activation accordingly. Level 1 is you're predisposed to be passive. My doctor is in charge of my health. I'm giving that up to my doctor. They know everything. I could be doing more is level 2. I'm being knowledge and confidence in my own abilities. I'm empowering myself with information. At level 3, I'm finally starting to take action. I am part of my team. I own my own healthcare. It's not up to someone else. And then finally level 4, I am my own advocate. I'm challenging treatment protocols, I'm informed. I'm participating very actively in my own education and in my own healthcare outcome.

And actually I was thinking about this as I reviewed the slide and I thought, you know, it would be very interesting to attribute a patient in those disease registries according to which of these levels the patient is existing is, because you're going to tailor your outreach differently for a level 4 patient than you are at level 1. And the problem right now is we kind of smear our education, assuming that there are no separational levels between patients and their ability to activate their own healthcare. So I think this might be an interesting new attribute to the patient records in those disease registries.

Okay. Next please...
Obesity Rates by Occupation

I'm going to breeze through this slide. We're (35:09) short of time. I wanna makes sure that Carrie has enough time. This is just an interesting diagram about obesity rates by occupation, and it get backs to what do we do differently according to people's background to manage them differently from a Population Health Management perspective.

Next slide please...

Criteria 10: Complex Clinical Practice Guidelines

Okay. So this is a very complicated topic and I actually think I should have listed this as criteria #12, but they were a challenging enough time in the industry to manage clinical practice
guidelines and develop meaningful guidelines for just single disease states. It's a whole another problem to develop guideline for comorbid patients. And in fact, the highest risk patients are all comorbid. So yes, the best that we seem to be able to do is chaining together single disease state protocols as if they apply to these comorbid conditions, but they don't. And there are some organizations that are taking shot at this but it's going to take quite a bit of time to figure out how to develop these clinical practice guidelines for comorbid conditions, but my physician friends tell me that this is one of their biggest headaches – is figuring out how to manage these comorbid patients and how to be given credit for the complications of that.

Okay. Next slide...

Criteria 11: Care Team Coordination

Care Team Coordination. Again, this is where the EMR starts to evolve and over the next two years, I hope it evolves towards more of a project management tool rather than an encounter management tool. The vision that I have of an EMR in the future is it looks more like something like a base camp. It's a project management tool, you have lots of people from the care team coordinating, including members of the family and the patients themselves, you've got milestones, you have metrics towards progression of health. Our current craft of EMRs doesn't do a good job with that. And if you look at the challenges of healthcare, a lot of it is in the hand-off and the communication between members of the core team or the care team. So we need to develop a new suite of products, EMR version 5 or 6, that will look more like a project management collaborative environment than these very narrowly focused encounter management tools.

And again, the question is, what are vendors doing in this area right now? When you ask folks, for instance, if you ask Health Catalyst this question, we have no products on our roadmap, we have no products in our wheelhouse right now to facilitate this. So, is Health Catalyst going to
develop these kinds of tools? That's a question to ask. And if not, who are they partnered with to provide this? What's the strategy going to be in the next two years to provide this because this is really important.

Criteria 12: Tracking Specific Outcomes

Criteria 12 finally is tracking specific outcomes and I kind of wish I would have moved this up because I think we need to move faster as a country and as an industry. It's really sad that we don't collect patient reported outcomes already. They need to be tailored to a patient's status and protocol. It's one of the most important missing pieces of data in our ecosystem today. I say all the time that my Toyota maintenance guy does a fair job of collecting outcomes on my encounters than my physician does. It kind of blows me away that my physician can't generate an outcomes survey from the EMR that's emailed to me that feed back to his EMR that gives him some idea of how well he's been treating me. There's of course a lot of clinical content that needs to be developed behind this. So it's going to be complicated in addition to technically it's culturally quite complicated too. But again, the question is, what are the IT vendors going to do to help with this? And there's a big area of opportunity.

Next slide please...
Vendor Evaluation and Scoring

I'm going to get into an area (39:20) through these slides that's in the whitepaper. I graded and I evaluated vendors in this space. I came up with these scores through. I've been in this business for many years. I'm personally experienced in it. I've been a customer of some of these products. I've interviewed employees. That said, I'm not perfect at this. And so, you need to evaluate these vendors yourselves, and in fact, that's one of the reasons that I want Carrie to have some time to talk here – is because I didn't give Crimson enough credit for some of the things they're doing in care management, for example.

So, next slide...

Focus on the framework & criteria, not the scores
Score these and other vendors yourselves
Focus on the framework and criteria, not the scores. Score these and other vendors yourselves. That’s the message I want to leave everyone with.

Next slide...

![Vendor Evaluation and Scoring](image)

Vendor Evaluation and Scoring
First tier evaluation scores

Here it is, and again we're not going to spend any time on this. This is just – it's more or less an example for me to provide a framework to stimulate thoughts, again focusing on evaluation of those first six criteria because they are the most important right now. They're the most reachable in terms of vendor products.

And next slide please...
Vendor Evaluation and Scoring
Second tier evaluation scores

And these 7 through 12 criteria, no one scores well on the 7th through 12th criteria and that's just the state of the market. Give us all time to adjust to that.

Next slide please...

Asset Allocation and Timing

This is how I would allocate my resources and people. I'm not going to spend any more time on this. Again, it's in the whitepaper and I would be happy to go into this in greater detail. But focus on the first six criteria wrapped up later.
Asset Allocation and Timing
Recommendations

This is the asset allocation and timing. This is how I would lay out a project plan over the next 5 years. Give the market time to evolve. And these are the milestones on which I would focus and expect to keep progress on each of those criteria.

Next slide...

Poll question
Who do you think will be the most capable to meet the data management requirements of Population Health Management?

- EMR vendors
- Analytic Specialists
- A combination of both

Poll Question
Who do you think will be the most capable to meet the data management requirements of Population Health Management?
So, let's ask one more poll question just to see where we think the audience would be. EMR vendors, analytic specialists or a combination of both, which of those will be most capable of meeting the Population Health Management requirements in the future? I bet I know the answer to this and I suspect everyone will probably respond accordingly. Then we really need to get on to Carrie's slide.

[Tyler Morgan]
Alright. We do have the poll live and we'll leave the poll up in just another couple of seconds and share the results.

Poll Results

Alright. The poll is now closing. And the results, 4% said EMR vendors, 19% analytic specialists, and 77% a combination of both.

[Dale Sanders]
Yup. I would agree with this. If I were still an operational CIO, that's the solutions that I would look for.
Conclusion

So in conclusion, follow the lead of the Integrated Delivery Networks, like Intermountain and Kaiser and Geisinger and others. They've been practicing PHM for years, just not calling it that. Look at the other frameworks that are out there from CCHIT, and National Quality Forum is developing a new initiative. And sequencing is very important.
Case Study: Using Data and Reporting in Population Health Efforts

Fusion healthcare system report from manually pulling together reports with varying data to having near real-time data that is easy to access. Enables our data interpretation to drive proactive care and ultimately lower our population health costs.

Case Study: Using Advanced Analytics to Manage Primary Care Population Health

Population health management is being driven by the 5% of the population accounts for 50% of healthcare costs. Being able to identify these patients provides high-quality care and reduces the utilization is a pressing goal for many of today’s primary care providers (PCPs). Learn how one organization used healthcare analytics to meet this challenge.

Implementing a Successful Population Health Management Strategy

A White Paper by Dr. David Barton

Based on 20 years of experience, first as a senior executive at Intermountain Healthcare and later as the Chairman of the Board of Health Catalyst, Dr. Barton shares his in-depth knowledge about how to systematically implement population health management in a long-term, sustainable way.

Other Population Health Resources

In Pursuit of Value
Combining Precise Population Risk Analysis with Robust Care Management Support

That's the end of my slides. And Carrie, I just want to give a brief introduction to you before we get started because you have such an impressive background.

Carrie Ivers is a Senior Director with The Advisory Board. I'm sure all of you are familiar with The Advisory Board, one of the organizations I admire most in the industry. Great company. Great culture. They are in about 4,000 hospitals. She joined The Advisory Board in 2001 and she has held a variety of roles, including product development and marketing. She's been a national speaker with The Advisory Board's Research and Insights Division.
And her current role, Carrie leads the team of researchers focused on understanding the challenges of healthcare and the landscape and how the market is going to impact the provider strategy. In addition to her role at The Advisory Board, she's a partner at Sigvion Capital, now Orchard Ventures, a biotechnology venture capital fund invested in early stage therapeutics and medical devices. Prior to joining The Advisory Board, Carrie served as an analyst with Incenter Strategies, a pharmaceutical and biotechnology firm. She also spent three years in the director of marketing for chronologic software. She has a great educational background as well. She's got a Bachelor's Degree in Molecular Biophysics and Biochemistry from Yale and an MBA with honors from the University of Chicago – Booth School of Business.

Thank you, Carrie, and please take over.

[Carrie Ivers]
Alright. Well thanks, Dale. I actually wanted to kick off my section by extending a personal thank you to you for inviting us to co-present on this webinar. Actually, I think it’s wonderful that you've started this dialogue and we are actually honored to play a role here. And I think all of you will see as I walk through my slides that almost everything that we found in our research dovetails directly with Dale’s findings. And I’m also certain, and I know Dale agrees with this, that Dale and I have been able to connect prior to the publication of the study to share a little bit more information on the breadths of portfolio that we've now built within Crimson. The rankings might have been a little bit different. But instead of kind of getting into the weaves of functionality, I’d really like to spend the last few minutes that we have together building on the blueprint, the blueprint that Dale just outlined. And what I want to talk about is what our research shows and that is understanding what organizations need right now to move more aggressively and effectively into the population health arena.

The Advisory Board Helps You Transition to Value-Based Care
So just real quickly on the next slide, for those of you who may have never heard of The Advisory Board, we are a membership-based research technology and consulting firm. We actually had a quarter in Washington, DC. Although we currently offer analytics that cover the inpatient ambulatory and population health arenas, we actually got our start as a best practice research firm, and I think that’s important because that’s where all of our product offerings have their foundational roots – it's in research.

And just like Dale, I actually have conducted a considerable amount of research on Population Health myself, but more importantly, we have a team of experts in the DC office who study this on a daily basis. And one of our more recent studies focused on what the best of the best population managers across the United States right now are doing exceptionally well. And what we are trying to do with that group is distil out what truly matters when you’re trying to best in class at Population Health.

Again, as Dale mentioned in his paper, we would agree with the fact that Population Health Management is still in the early stages. I think the poll that we just conducted confirms that. Also, if you ask any two organizations how they define Population Health Management either from a scope or literally a definition standpoint, you’re probably going to get pretty different answers.

But again, I want to reiterate that there are organizations that are out there, the organizations that are in that high maturity group, and they’re doing this and some of them are doing it very well. Organizations that have been working in capitated environments or under reimbursement models that encourage preventative care and encourage Population Health, these are the organizations that we look at for our research. So that’s what I'm going to be focusing in on.
The Business Case for Change
Diverse Motivations for Population Health

On the next slide, the healthcare landscape is definitely changing. More and more organizations are making the necessary investments to become a Population Health Manager. And what I think has been interesting of late is that we’ve seen the pace pick up. We’re hearing new terms emerge in the industry, strategic risks, managing the patient pathway. It almost seems like it's a little bit viral. I mean as soon as you see an ACO pop up in the local market, a handful of other ones seem to pop up shortly thereafter.

I think one example that struck me this year and really has opened my eyes, and this was back at ACO Congress, Mark Hillard was on the panel. He’s the chief development and integration officer at Dignity in Phoenix, and he said during his presentation that in very short order, market share is going to be measured differently. It’s no longer going to be measured in terms of discharge volumes, but instead we’re going to be talking about the number of covered lives in a portfolio. And as many of you know, in some markets, this has already happened. It’s literally becoming an arms race.

Progressive organizations understand this. They understand that Population Management is going to allow them to tap into new market opportunities through payers, through employers. And to use this effectively, they know they need to build the right infrastructure, the infrastructure necessary to provide high quality coordinated care and reduce financial risk and they need to be doing it right now.

Two Plausible Transition Paths
Enabling Financial Success from Population Health Management
And as a result, if you turn to the next slide, one of the big decisions that we need to wrestle with is illustrated here. Should we first be focusing on getting our health in order and then taking on financial risk? That's the top line of the graphic. Or should we follow the bottom line, pursue contract negotiations first and then aggressively transform care. And I've got to tell you that two years ago, I would have said it doesn't really matter. It doesn't matter which path you choose, just pick one, and let's get going. But that advice has now changed. We ended up seeing a number of very talented and successful providers transforming care delivery in their organizations, reducing acute care utilization, and simultaneously aggressively reducing those fee for service revenue. And rather than reward those providers, the payers said, "thanks, thanks for saving us money."

So there's a classic free rider problem that's inherent in this choice. If you choose to go down the path of transforming care first and raise the bar significantly, which we all want to do, you're simultaneously eliminating the need for the payers to pay you. And the truth is that we're ultimately going to have to do both of these in tandem and it's going to be a delicate balance, but it's very important to make sure your contract or payment strategy is going to lead your transformation strategy, not the other way around. And it's the reality of economics that the delicate balance, you can't cannibalize your fee for service revenue stream until you hit the right tipping point, that spot in the curve, whether you're starting to get paid for improving care.

And right now, organizations aren't really getting paid to do Population Health. The industry is definitely moving there but right now there's little to no financial incentive outside of relatively weak readmission penalties and value-based care payments. The money really isn't there. It's coming but it's not there yet. And as a result, right now, successful organizations are methodically building a prioritized discipline investment plan. You know what assets you need to get there but some of them you just don't have yet, and at the same time, most of us don't have a lot of excess capital just sitting around with which to acquire those assets. So it comes down to strategy. How can you strategically scale your investments over time, including IT, in lockstep with your transition to value-based care?

So for example, even though large scale data warehousing strategies are very interesting to organizations that currently have a large percentage of a population under some kind of at-risk payment structure like 50% and the average organization, who's just putting their toll in the water with MSSP or bundled payments, isn't going to see return on that kind of huge investment for years, upwards of five years. But at the same time, those average organizations still have to move in to Population Health quickly – because as soon as you flip the switch, you're responsible for effectively managing the patient populations that you've taken on. On day 1 of that MSSP contract, you're responsible.

So my point is that you still need to invest in Population Health and IT infrastructure but timing is also a key component here, and this is what I speed to value, it's one of Crimson's core (52:19). We're constantly thinking about how we can use the data that our members have
available today, that they have right now, so they can act on it today, they can act on it right now while they're simultaneously building that long-term plan and infrastructure.

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**Extremely Challenging to Execute Successfully**

On the next slide, let me be clear, this is absolutely not easy. You can see here four primary hurdles that are researched on earth, four challenges that tend to impede success and executing effectively on a Population Health Management strategy.

The first one is transparency. We've got to understand where we are today, whether it's utilization of services by patients or physicians or practices or across an entire population. Too often this information is locked in silos systems or maybe it's being managed and maintained by a biased source, like a payer, in some instances.

Next, prioritization, and this isn't just about current population, it's also about who are going to be at risk for tomorrow and the future, what patients warrant the years of very limited, very precious resources before critical events happen, taking a proactive stand to patient care, no longer relying just on retrospective information.

The third one, focus. We've got to make sure we put this risk assessment in the hands of our clinicians on the frontline. We've got to prioritize individual efforts for each patient, as well as the big picture efforts across the system.

And then lastly, and this dovetails directly with Dale's research, how do we measure impact? How do we track and report on our success? It might seem easy to some of you but I can assure you this is absolutely not easy. So many variables are at play in our transactions with patients. It's very challenging to distil out and see direct correlations or get to causation. But
we've got to understand where our efforts are both having positive impact and where we're failing. That's crucial. It's essential to operating in the new payment environment.

So four clear mandates, each challenging in its own way. How did best in class organizations overcome them?

Managing Three Distinct Populations Essential to Profitability

On the next slide, it's all about their approach to patient care, how they've organized their care processes, they're staffing, their IT investments. They're organizing around specific patient care models and they've also built a culture that supports the singular goal of Population Health Management. And I actually found this particular piece of research to be very interesting. The most critical element that all these organizations had in common was that they realized that Population Management, it's not about managing one population, it's actually about managing three populations. Each one has different goals, it requires different resources, it requires the different care models.

First at the top we've got our high-risk patients. These are the ones that most organizations are looking at right now. They definitely have generated a lot of buzz in the industry. These are patients with at least one complex illness, multiple comorbidities, psychosocial problems. As an example, a poorly controlled CHF patient here has diabetes and other chronic conditions would fall into this category. For the high-risk patients, the goal is actually two-fold. First, intensive comprehensive proactive management and trading high cost acute care services for low cost acute care management. Wherever, whenever, it's actually clinically effective to do so.

Second patient type, this is the next tier down. This is the medium-risk group or what we've come to call the rising risk group and I actually think that distinction is important. Think of this patient group as the diabetic who's also obese and smokes. For your rising risk group, again,
Two overarching goals. First, you try to avoid unnecessary spending, and this is critical, to keep these patients from becoming high risk, and it's important because at least 20% of rising risk patients become high risk patients every single year. And this is the statistic as much here as in any other country that is at the cornerstone of the cost growth program in the US.

The third patient type is the low-risk patient group. Roughly 70% of patients tend to fall into this category. They're healthy. Or if they do have a chronic condition, they're usually managing it pretty effectively. Again, two goals for this group, keep them healthy and keep them loyal to the system.

And by the way, we actually have financial modeling that supports this population analysis. I'm not going to get into it in any interest of time but on average, those organizations who only manage their high-risk patients ended up seeing a 5% negative in margin, while those that manage the high-risk and the rising risk group saw a 3% positive margin from those efforts.

Managing three different populations is absolutely challenging. This is where we believe technology plays a key role.

On the next slide, I'm going to lay out three best practice technology capabilities that facilitate complex population management. First is the identification of opportunities and the subpopulations of high-risk high cost patients that would benefit from targeted intervention; Next, facilitating workflow for the clinical team, managing these patients effectively so that you're ensuring timely appropriate delivery of the care plan; And then finally, allowing for the evaluation and measurements of that care plan. Is it having an impact both from the clinical and financial perspective.
If you flip to the next slide, we've got an example here. This is actually a high level strategy that's being executed by one of our most progressive Crimson numbers right now. They're building out a very large data warehouse which will eventually become an excellent source of data for all of their applications, including Crimson. And at the same time, right now, they're using Crimson to execute on their Population Health Strategy.

Crimson is not a data warehouse. We've leveraged data warehouses. We're not in the business of focusing on ad hoc queries and creating dashboards. We're focused on providing our members with guided analytics, leveraging research, to already ask the right questions, providing the workflow that organizations need, and helping our organizations that work with us solve their most pressing challenges. I think Angela Ward, she's a good friend and she's a chief pharmacy officer at Memorial Hermann, she kind of described the difference between Crimson and other applications to that by saying what she loved most about Crimson is that everytime she logs in, she always uncovers a new opportunity or a new problem or area of interest that she didn't even know existed. So it's not just about asking questions, it's about having questions be asked for you. It's the combination of intellectual property and intellectual capital. We are leveraging an army of healthcare experts, researchers, as well as most importantly brilliant insights that are coming from members who are doing this, who are being successful. We're taking that information and using it to embed the right questions into the applications already, asking and answering things that our members might not even have thought of yet. And we view our relationship with our members as true partnerships, working together to execute effectively on a best in class Population Health Management Strategy. But even though it might seem straightforward or simple, a lot of organizations really struggle with this.
If you turn to the next slide, the most common solutions that we've seen out in the industry right now tend to address one piece very effectively but they missed the picture. For example, they might be looking at clinical data, but then they missed the perspective at paid claims data provides or they're relying on payers to create transparency on areas of opportunity, etc. There's a huge amount of investment being made in population health right now, and there's certainly opportunity to warn it because of all the noise in the industry. But unfortunately, for a lot of organizations, the path forward with their IT infrastructure is uncertain. And just like Dale, we wanted to figure out best in class approach. And so, we went straight to the research. We followed the same pathway, trying to pull forward those elements that are truly critical for success. But we ended up conducting our research with a different audience, a slightly different audience.

When the successful population health managers we interviewed, which is the source for most of our research, shared their critical elements for success, they consistently laid out the following five criteria. And again, I think this will validate what Dale ended up finding.

First and foremost, comprehensive visibility, having an integrated global data set, all payer, clinical, financial data, all settings of care, all of your facilities, as well as other facilities, where the patients you manage also access care.

Second, engaging physicians, this is key. Robust data, benchmarks presented in a way that engages physicians, withstands pushback and earns trust. Robust population level analytics, actuarial expertise to enable risk stratification is essential to prioritizing. It's also essential for accurate measurements and the analysis that retrospective or prospective analysis of your intervention. Point of care workflow tools, making sure that the entire collaborative care team,
spanning clinicians, community workers, family members, prioritize their time and effort and facilitate a proactive evidence-based approach to care.

And then a design, lastly, that serves the many many stakeholders who are involved in population health management success. Functionality that there's administrators, managed care and clinicians, in their roles. The key is also to have a single system that enables seamless collaboration.

We've seen a ton of opportunity loss to leakage between IT systems. So these elements combined with the realization that we need solutions that can begin supporting population health and generate ROI, return on those investments today, those were the driving forces behind the Population Health Suite that Crimson constructed.

Data-Driven Insights Enable Proactive and Comprehensive Care

And if you turn to the next slide, the foundation of the Crimson Population Solution is a robust and comprehensive data set that spans all payers, physician practices, facilities. We partnered with the healthcare industry leader in actuarial analysis and utilization benchmarking, Milliman MedInsight, I'm sure many of you are familiar with them, to make sure that our members are effectively identifying, prioritizing the right opportunities, the right patients, to deploy their scarce resources toward.

The acquisition of Care Team Connect, which is now known as Crimson Care Management, allows us to offer truly best in class care management and workflow functionality. And together, we've designed a platform that drives clinical insights and allows organizations to manage total cost and quality of their populations, hardwire intervention into individual health and support their physicians in executing on all of the goals that they need to execute on to increase quality. We've specifically designed our solution to support providers as they make
this transition into value-based care. We've been at this for a while now. We're working with more than 350 ACOs, the largest number of clinically integrated networks in the country. We've got about 45 million lives in our benchmarking database right now.

And in the interest of time, I'm actually going to leave our last two slides for your later review.
For Additional Information, Infographics and Research visit the following link:  
www.advisory.com/research/resources/posters/accountable-for-progress

You can also email iversc@advisory.com

**Additional Information**

But I want to pull up and close my comments with one final observation. In the old days of managed care, we tended to put a series of increasingly onerous obstacles between our patients and their providers. Long wait times, tightly controlled narrow networks, mandatory referrals to see specialists, pre-authorization for anything more complex than getting a blood pressure reading or utilization review, and at every single step along that process, we made the patients sit down in the office and fill out a form to answer the exact same question. More forms, repeat the patient history, and so on. It would be difficult to imagine a more consumer unfriendly process. In today’s world, I would argue the story couldn’t be more different. Now, the focus is on access, convenience, lower costs, more proactive care, getting the patient to the right care in the right setting as quickly and efficiently as we possibly can, not developing an increasingly insane series of tactics to keep them out of the system, but developing an increasingly sophisticated and efficient model for bringing patients to our system. As much as anything, I actually believe that’s what characterizes the era of today relative to the era of yesterday. This is an era of care management. It’s more than just data, it’s more than just putting data into the same place, more than just connecting dots. It’s about the vision that I just painted, using information as a tool to drive better outcomes, work faster, work smarter, have a bigger impact with the resources we have right now in less time. Our members are leveraging data right now to drive better outcomes, right now as we speak. And I’ve got to tell you, that’s what actually inspires me to get up and come to work every day.

And as Dale mentioned at the beginning of this presentation, technology plays a huge role here. It’s helping these kinds of progressive organizations change the way that they deliver care. It’s very exciting to be part of that process.

And once again, Dale, I’d love to thank you for allowing us to share our research and how it dovetails with the work that you found and conducted in your whitepaper.
Thank you all for your time.

Thank you
Next Educational Webinar

[Dale Sanders]
Thank you, Carrie. And again, mutual appreciation and admiration. I have the highest regard for The Advisory Board and highest regard for you and it’s our honor to share the time. We have a whole bunch of questions. We still have almost 400 people online. And so, we committed to stay online to answer all those questions. So unless there’s any other thoughts, Carrie, that you’d like to share, I will start going through those.

[Carrie Ivers]
No, that sounds good.

[67:28]