An ounce of prevention is worth a pound of cure

Population health management in Germany’s Black Forest

A thought leadership paper on how to “Manage population health”
Preface

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Executive summary

Delivering “sick care” instead of healthcare—this might be shorthand for the issues many countries around the world are facing.

They need to cope with sub-optimal patient outcomes, rising healthcare costs, and health systems that are resistant to change. For many years now, health literature has featured references to, and stories about, something called population health management. This is, simply put, an approach to healthcare delivery that aims to improve the health of the entire population and to reduce health inequities among population groups. Until recently however, the concept of population health has been one that is more discussed than acted upon. ¹

Population health management has not been featured prominently in discussions about how to improve healthcare systems. But it has not been entirely lacking either. One example can be found, surprisingly, in a remote area of Germany where you wouldn’t necessarily expect to find healthcare innovation.

Sixteen years ago, in the Kinzig Valley region of Germany’s Black Forest, a group of physicians decided to shake things up a little. They partnered with the health management company OptiMedis AG, enlisted a couple of insurance providers, and launched a population health management company called Gesundes Kinzigtal, or “Healthy Kinzig Valley”. Together, they offered a new model of care, one based on working with patients to prevent disease and injury, and on integrating care across the region in order to better treat diseases and injuries when they occur.

Sixteen years later, Gesundes Kinzigtal is frequently cited in international research and media as a potential model for solving some of healthcare’s most vexing problems. ²⁻⁵ Researchers point to better patient outcomes such as longer lifespan and fewer injuries, as well as increased patient satisfaction and lower overall healthcare costs—7% lower compared with average costs across Germany. ⁶

Gesundes Kinzigtal has been so successful that OptiMedis is now implementing similar models in other regions of Germany as well as in other countries. What began 16 years ago as an experiment in Germany’s Kinzig Valley is today a template for a model that has the potential to transform the way we think about, and deliver, healthcare—reducing costs and helping people to live longer, healthier lives.

Number of publications on the topic of “population health management”

Numbers based on a keyword search for “manage population health”, “managing population health” and “population health management” within the publications’ full text listed in the EBSCO platform and MEDLINE database.
The Kinzig Valley, or Kinzigtal, in Southwest Germany is home to several small villages and a population of approximately 71,000. These are, by and large, lower to middle income people with a relatively high level of chronic disease. Kinzigtal is located in Germany’s historic Black Forest region. The area is said to have been a setting, or at least an inspiration, for many of Grimms’ Fairy Tales, still told today to children everywhere. It is known to be the birthplace of the cuckoo clock, and is renowned for its rural beauty, gothic buildings and world-famous spas. And in recent years, it has been at the center of an experiment in managing population health that may well be one of the models on which future health systems are based.

In 2005, a regional network of physicians called Medical Quality Network Doctors’ Initiative Kinzigtal (MQNK), together with the health management company Opti-Medis, founded a regional health management company they called Gesundes Kinzigtal, which translates as “Healthy Kinzig Valley.” Their goal was to promote a population-based, integrated care approach throughout their region, one that would connect patients, providers, and health insurers, which are Germany’s version of publicly funded health insurance.
Together MQNK and OptiMedis were able to convince two large statutory health insurances, Allgemeine Ortskrankenkassen Baden-Württemberg (AOK BW) and Landwirtschaftliche Krankenkasse Baden-Württemberg (LKK BW) to sign on with the project. Together, they insure roughly half the area’s population, and Gesundes Kinzigtal is responsible for managing and delivering their care.

By way of an overarching organizational goal, Gesundes Kinzigtal adopted the Triple Aim Framework, which was first developed by the Institute for Healthcare Improvement (IHI). The framework describes an approach to optimizing health system performance. It involves the simultaneous and coordinated pursuit of three goals—thus, the “Triple Aim”:

- Improving the health of populations
- Improving the patient experience of care
- Reducing the cost of healthcare

Fifteen years after startup, Gesundes Kinzigtal is entirely financed by the savings from the model. Compared to the average healthcare spending in the rest of Germany, the Gesundes Kinzigtal approach reduced their healthcare expenditures by 7% in 2019. Overall the organization has always generated savings in the last 14 years. It has also seen sustained improvements in health outcomes across its patient base.

This paper examines the population health approach taken by Gesundes Kinzigtal in the context of the challenges facing healthcare organizations everywhere. It looks at the results that have been achieved, which are by all accounts extraordinary. And it makes the case that in light of current trends and considering today’s realities, the model created in Germany’s Kinzig Valley 15 years ago may well help light the way to the future of healthcare systems around the world.

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In 2019 the Gesundes Kinzigtal approach reduced healthcare expenditures by 7% compared to the rest of Germany.6

-7% 93%
The challenges facing healthcare in Kinzigtal are by no means unique to that region. Nor are they unique to Germany. Around the world, healthcare systems are grappling with sub-par outcomes, inconsistent patient safety, and rising costs that are likely not sustainable.

In Germany, the problem of rising costs has been vexing system planners for many years. The country ranks in the top three spenders on healthcare in the OECD. Healthcare expenditures rise by approximately 4% annually every year. Germany spent close to €5,000 per person in 2019, for a total expenditure of more than €411 billion. That is 11.9% of overall GDP.

The reasons for the increasing cost pressures in healthcare delivery are not hard to understand, though considerably less easy to solve. There is a checklist of obstacles that is likely familiar to health planners worldwide:

- The healthcare system is fragmented and made up of sectors that are well established and deeply entrenched in their own way of doing things
- There is little or no coordination among, and integration of, different health services such as ambulatory care, inpatient care, rehab and public health
- There is little focus on prevention and wellness
- Adoption of cost-saving and collaboration-enhancing technologies such as the electronic health record has been very slow
- There is insufficient communication among healthcare providers within the same sector, as well as across sectors, leading to redundant services, missing information, and higher costs
- Reimbursement schemes reward treating diseases instead of promoting prevention

Kinzigtal has had to contend with a challenge well-known to many remote and rural areas. Remote locations such as these have a harder time attracting physicians. The proportion of privately insured individuals (which allow for higher reimbursements), is below the German average of about 10.6%. They also have less access to transportation services than many other regions, and consequently travel between villages to access healthcare services is not always possible.

In addition, Kinzigtal has a relatively low population density, and people there are older—17.8% of the female and 11.5% of the male enrolled population are older than 75—and thus are at elevated risk for chronic diseases such as osteoporosis.

The question that was asked by a team of healthcare providers in 2005 was, “how can we overcome barriers within the current system to create an integrated healthcare system that works for our patients and is cost-effective and sustainable?” The answer, as it turned out, was Gesundes Kinzigtal.
The solution

Gesundes Kinzigtal’s model was designed specifically to counter the way things have traditionally been done. The approach is based on the core belief that institutional fragmentation—primary care, public health, community care and hospitals all planning, organizing and working independently from one another—is not in the best interests of patients, nor is it in the best interests of the healthcare system itself.

And so, for the past 15 years, the organization has executed a population-based, integrated model of healthcare that has improved patient outcomes, increased patient satisfaction, and lowered costs. The approach is five-pronged:

1. Create a fully integrated network
2. Implement a “fee for value” incentive scheme
3. Pursue a culture of quality among healthcare providers
4. Foster prevention and self-managed treatment among the population
5. Leverage innovative technology

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<td>Technology: Leverage innovative technology</td>
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3

Provider: Pursue a culture of quality among healthcare providers

4

Population: Foster prevention and self-managed treatment among the population
1. Create a fully integrated network

The lynchpin of the Gesundes Kinzigtal approach is the integration of all relevant stakeholders in the region. This of course includes those patients who are insured with the two public health insurers, and they are linked with primary care physicians, specialists, nurses, social care, therapists and pharmacists. In all, the organization encompasses more than 50 healthcare providers, including hospitals, physiotherapists, ambulatory care services, pharmacies, and nursing homes. More than half of the general physicians in the area and 75% of specialists are part of the Gesundes Kinzigtal team.

The result of this is that if and when a patient contracts a serious illness or chronic disease, he or she is quite literally at the center of care, being attended by a team of different providers with different skills but one common goal, which is a positive health outcome for that patient.

The organization also has approximately 75 partners peripheral to, but outside, healthcare, such as gyms, sports clubs, self-aid groups, seniors’ groups and community organizations. They have thus been able to create a strong regional network that enables successful integrated health.

In addition, the system encourages joint decision-making between patients and providers with a patient advisory board and a patient ombudsperson, ensuring that patient perspectives are always considered, and patient rights always respected.

Gesundes Kinzigtal has also introduced the concept of a “trusted physician”—a primary care doctor chosen by patients to be the first and ongoing point of contact along their healthcare journey. This trusted physician works with patients to develop personal care and treatment plans, and helps them navigate the different parts of the system.

“We created a solution that didn’t exist in the everyday practice. The whole process of healthcare is more binding, focused. Patients are given a greater share of the responsibility concerning their own health and wellbeing.”

Dr. Christoph Löschmann
CEO of Gesundes Kinzigtal
“For us, integrated care is more than just the integration of a general practitioner and specialist, rescue services and submission of care etc., but it is also about the integration of public health for prevention and health promotion. I believe that 20-30% of our effect comes from this area alone.”

Dr. h.c. Helmut Hildebrandt
Chairman of the Board of OptiMedis AG, co-founder of Gesundes Kinzigtal

2. Implement a “fee for value” incentive scheme

Gesundes Kinzigtal was launched on the strength of a €4 million initial investment by AOK BW, and immediately became accountable both for the health of the insured population and for the cost of that health. It has successfully met that challenge by linking overall population health quality to physician compensation.

The way it works is that the two statutory health insurance companies (or sickness funds) receive their funding from a central allocation pool that collects wage contributions from across the country. The amount of this funding matches the predicted cost of delivering healthcare to their insured patients, based on comparable, risk-adjusted and matched insurers costs from around the country. If the health insurances spend less on healthcare than the risk-adjusted population budget—due to the successful health management of the insured population—they share those benefits with Gesundes Kinzigtal. In this way, Gesundes Kinzigtal providers are rewarded not only for helping their patients get better when they are sick or injured, but also for helping them not get sick or injured in the first place. Because, obviously, this reduces health costs as people need less healthcare.

In turn, Gesundes Kinzigtal invests its part of these shared savings to further develop integrated care. This is a type of “virtuous circle”—healthcare providers deliver better services to their patients, resulting in better health outcomes that reduce costs, which in turn allows healthcare providers to deliver even better services to patients. And the circle continues.
3. Pursue a culture of quality among healthcare providers

The Gesundes Kinzigtal remuneration structure is designed to make it worthwhile for providers to use all of their knowledge and skill on behalf of their patients. It is the antithesis of a system that rewards doctors for seeing as many patients as possible every day.

The Gesundes Kinzigtal system follows a balanced, two-level remuneration system for cooperating healthcare providers. The first level is the kind of regular remuneration from health insurers to which physicians all across Germany have access. The second level, however, is what changes everything. It is at this level that physicians in Kinzigtal are encouraged to go the extra yard for their patients, and are fairly compensated for doing so:

- Over and above the normal reimbursement from health insurance contracts, health providers receive additional fee-for-service payments for special additional services requested by their patients, such as arranging last minute, unplanned appointments in specialty care for patients in order to avoid bottlenecks, and offering regular and more comprehensive patient check-ups.

- In addition, healthcare providers are compensated for steps they take to constantly improve the quality of their practice, and of the services they provide. Examples of this include a consulting service to improve IT infrastructure of individual practices and enhance internal communication, training of employees and health coaching for complicated cases, and support in developing and evaluating patient surveys and then incorporating patients' feedback.

It is important to remember the “fee for value” nature of this model. If the health insurers spend less on healthcare than expected, because Gesundes Kinzigtal physicians help their patients incur fewer healthcare costs in the first place, the health insurers share those savings with Gesundes Kinzigtal.

“It is our common aim not only to secure the quality of outbound care in our region, but to improve healthcare for our patients.”

Dr. Dörte Tillack
Specialist in general medicine
A versatile network for integrated patient care

### Healthcare providers

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<tr>
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<td>Nursing homes</td>
<td>Physiotherapists</td>
<td>Hospitals</td>
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| 34,000 |
| Population |

### “Beyond health” providers

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<tr>
<td>Clubs (activity/sports)</td>
<td>Companies</td>
<td>Gyms</td>
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4. Foster prevention and self-managed treatment among population

If the lynchpin of the Gesundes Kinzigtal approach is integration of stakeholders, the philosophical heart of the approach is fostering prevention and self-management. It recognizes a fundamental truth of healthcare, which is that you do not have to cure illnesses that do not happen. For that reason, the Gesundes Kinzigtal model emphasizes self-empowerment and education about the importance of movement, nutrition and avoiding risky behavior.

It should be no surprise that one of the first programs ever offered by Gesundes Kinzigtal was a smoking cessation program. To be a patient of Gesundes Kinzigtal is to almost certainly enter into a conversation with your physician about your lifestyle as it relates to your health, and approaches you can take to reduce any risks.

The “trusted physician” approach referenced earlier is particularly relevant here. Patients and their trusted physician discuss and agree on “establishing an objective”—that includes health goals and a (treatment) plan to achieve them.

It is important to note that the plan does not need to be restricted to medical treatments. Gesundes Kinzigtal is strongly focused on self-care, emphasizing health literacy training, first aid classes, and fitness. Over the years, Gesundes Kinzigtal has offered programs such as “Strong Heart”, “Better Mood”, “Staying Mobile” and “Healthy Weight”. Indeed, in the Kinzig Valley town of Hausach, Gesundes Kinzigtal makes its home in a building it calls Gesundheitswelt Kinzigtal or “Health World Kinzigtal”, which contains a full gym and “health academy”, including several classrooms where self-care and fitness seminars are taught.
5. Leverage innovative technology

The essence of integration in healthcare is the collecting, sharing and acting on of information. In light of that fact, the fifth prong in the Gesundes Kinzigtal approach is the leveraging of innovative information technology. The Gesundes Kinzigtal model leverages innovative technology in three basic ways:

1. Electronic health records for physicians to generate and aggregate data

Electronic Health Records (EHRs) are currently used to ensure that health providers have the information they need to properly care for their patients. Gesundes Kinzigtal created these records early on. The system allows providers to immediately access general information, medical history, medical findings, diagnosis, and the patient’s therapy plan, regardless of where the data has been entered into the system.

In this respect, Gesundes Kinzigtal has been well ahead of the rest of Germany. In 2003 the federal government announced it would be introducing electronic patient records throughout, across the country. It has taken 18 years, with a first pilot version becoming available to patients and healthcare providers in early 2021.

In addition, Gesundes Kinzigtal is developing software tools to connect different management systems used in physicians' practices in order to allow and improve data exchange. This will allow for quick access to patient data by any provider who needs it, thorough and reliable documentation, easier patient interaction, and patient-focused cooperation between physicians, which will result in less redundancy, higher productivity, and improved clinical decision-making.

2. Business intelligence solutions

The generation and aggregation of data has opened up a range of possibilities for improving patient outcomes and delivering more cost-effective care. Gesundes Kinzigtal and OptiMedis are able to take the volumes of aggregated data and run business intelligence solutions to analyze and operationalize it, using it to build predictive modeling that allows for the identification of cohorts and high-risk patients. Providers can then proactively reach out to patients, adapting healthcare services and preventative programs that help them before it is too late. Finally, dependable cost-benefit analysis allows OptiMedis to evaluate the outcome of those programs.

3. e-Health applications to foster prevention and self-treatment

Electronic technology offers real potential for supporting patients in the active management of their own care. Mobile health apps make it possible for providers to collect important data from their patients, which is especially useful in the case of elderly people who have a harder time visiting their doctors. Gesundes Kinzigtal is involved in a number of national and European research projects, one into what is called Ambient Assisted Living technology. This technology involves what are often referred to as digital companions for the elderly: computing systems that help older people with everything from detecting smoke to controlling music to turning lights on and off.

In addition, Gesundes Kinzigtal is exploring the use of technology that can support the relatives of elderly and frail patients. A good example would be live video consultation services for relatives, to help them be better informed about how best to care for their loved ones.
Gesundes Kinzigtal began as a long-term pilot project. It would be a surprise, to say the very least, if the pilot is deemed not to have succeeded. As noted earlier, Gesundes Kinzigtal has been driven from the start by a commitment to healthcare’s Triple Aim Framework. And if we look at the three goals that make up that framework, we can see that significant progress has been made towards achieving all three.

• Improving the health of populations
• Improving the patient experience of care
• Reducing the cost of healthcare

Improving the health of populations

Patients live longer and get injured less often. That is the story of patients under the Gesundes Kinzigtal model. The only real way to assess the success of this type of healthcare model is to compare their patient outcomes to the outcomes of patients not in the model. A 2021 study showed that average age of death for those enrolled in the Gesundes Kinzigtal program is 79.9 years, compared to 77.1 years for non-Gesundes Kinzigtal participants. Overall, the risk of death, in the six years following enrollment in the study, is 19% lower for Gesundes Kinzigtal participants compared to non-Gesundes Kinzigtal participants. In addition, patients who have participated in osteoporosis programs suffer 45% fewer fractures than patients who do not.
Improving the patient experience of care

It is never easy to assess the quality of a patient’s experience with care. Health outcomes are easily measured; patient satisfaction less so. Researchers do make the attempt, however, and studies have shown that patients are indeed happy with the quality of care they receive through the model Gesundes Kinzigtal introduced.

One such study showed that more than 40% of respondents felt “somewhat” or “considerably better cared for” after they had enrolled in Gesundes Kinzigtal. Close to 60% indicated they had gained a better understanding of “how to maintain or improve” their own health. And more than 30% felt that their health behavior was more effective than it had been prior to enrollment.

Reducing the cost of health

The analysis of Gesundes Kinzigtal is food for thought for health systems concerned with rising costs. Data gathered over 15 years suggests that the Gesundes Kinzigtal approach can significantly reduce healthcare costs. Studies from 2014 and 2016 indicate that more than US$200 can be saved annually per participant. In 2019 total savings amount to 6.7 million euros (7% less than the average comparable spending in the rest of Germany).

Quadruple Aim – Improved Clinical Experience

“I can work more efficiently, because I can see which medications or treatments the family doctor or another specialist has already prescribed.”

Dr. Christian Daxer, ENT physician

Since its inception, the Triple Aim has proven to be an invaluable tool in optimizing health systems. In recent years, however, many healthcare leaders have begun citing “Improved Clinical Experience” as a critical fourth aim. The widely accepted theory is that if providers do not see improvement in their experiences, the chances of the other three aims being fully achieved will be reduced. Thus, the Quadruple Aim has begun to be widely adopted.

Looked at in light of the fourth aim, the Gesundes Kinzigtal model is still an undeniable success.

The network itself is set up in a way that does not make providers competitors, but rather comrades-in-arms with a common goal. Through their partnership agreement, the members of the MQNK (Medical Quality Network - Doctors' Initiative Kinzigtal) receive a bonus for sustainable economic success.

Closer cooperation with other service providers report

- 69% of primary doctors
- 61% of specialist doctors

Financial benefits report

- 77% of primary doctors
- 44% of specialist doctors

Advantageous networking and exchange of information report

- 73% of primary & specialist doctors

Would recommend the membership to others

- 90% of primary doctors
- 73% of specialist doctors

“It was a bet on something that is scientifically known: You can create better care that is economically effective at the same time. We could prove that.”

Dr. h.c. Helmut Hildebrandt
Chairman of the Board of OptiMedis AG, co-founder of Gesundes Kinzigtal
Continued success

The Kinzig Valley is a small area, and its population makes for a relatively small sample size. These are factors that undoubtedly should be considered when assessing the success of the Gesundes Kinzigtal model. But the fact remains that over the past 15 years, this model has checked every box for success that researchers have thought important to consider.

Patient outcomes – Better
Patient satisfaction – Higher
Healthcare costs – Lower

Gesundes Kinzigtal is an integrated model of care that focuses on, and rewards, prevention when possible, and a coordinated, patient-centered approach to treating disease when necessary. Over the years, Gesundes Kinzigtal, OptiMedis, and MQNK learned from shortcomings and mistakes and used those lessons to advance their knowledge and capacity. Today, they are responsible for the existence of several available, and scalable, standards, technologies and tools that enable population-based integrated care. These include:

- Evaluation protocols
- Investment models
- Health and prevention programs
- Compensation models
- Quality indicators
- Management manuals
- Data warehouses
- Business intelligence systems
- Standardized reporting
- Business plan tools

The spread of an idea

These various tools and technologies are now in use beyond the Kinzig Valley, as word of the Gesundes Kinzigtal model has spread, and other regions have begun recognizing the synergies and benefits of integration and cooperation.

In May 2018 OptiMedis successfully implemented an integrated, patient-centered care network in the north of Hesse called “Gesunder Werra-Meißner-Kreis”, that was followed three years later by neighbouring “Gesunder Schwalm-Eder-Kreis+” in Northern Hesse.

In addition, Dr. h.c. Hildebrandt’s team has become more active in other European countries such as the UK, Belgium and France.

Requirements for success

For jurisdictions looking to adapt the Gesundes Kinzigtal model, there are three basic requirements for success.

1. Integrator

This regional integrator will setup and coordinate the model owned by service providers in combination with a health management organization.
2. Sustainable finance model

Any new integrator organization will need up-front investment to cover operating costs for at least the first three years. In addition, the organization must offer a reimbursement model that has the support and acceptance of the insurance companies. It focuses on value, not volume. It emphasizes prevention as much as cure. The integrator will have to find a way to convince insurers of the potential in sharing in the profitability that comes from reduced health costs.

3. Stakeholder involvement

The entire point of an integrated system is that it depends on buy-in from everyone involved. This means regional service and healthcare providers, physician networks, population and health insurers and, of course, patients. In addition, the local population must be willing to participate and share health data, as must the health insurance companies.

If all of these requirements can be met, then organizations looking to adapt the Gesundes Kinzigtal model stand a good chance of success, in Germany and around the world. The fact is, the basics of good healthcare really do not change. It is much better to prevent disease than to ever have to cure it. But if you do have to cure it, the more smart people you can bring together to do so, the better off you will be. And the better off your patients will be.

Suggested follow-up on

siemens-healthineers.com/insights/transforming-care-delivery


• Insights Series, Issue 7: Do one thing, and do it better than anyone else. Available at: siemens-healthineers.com/insights/news/martini-klinik-specialization-optimization.html

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