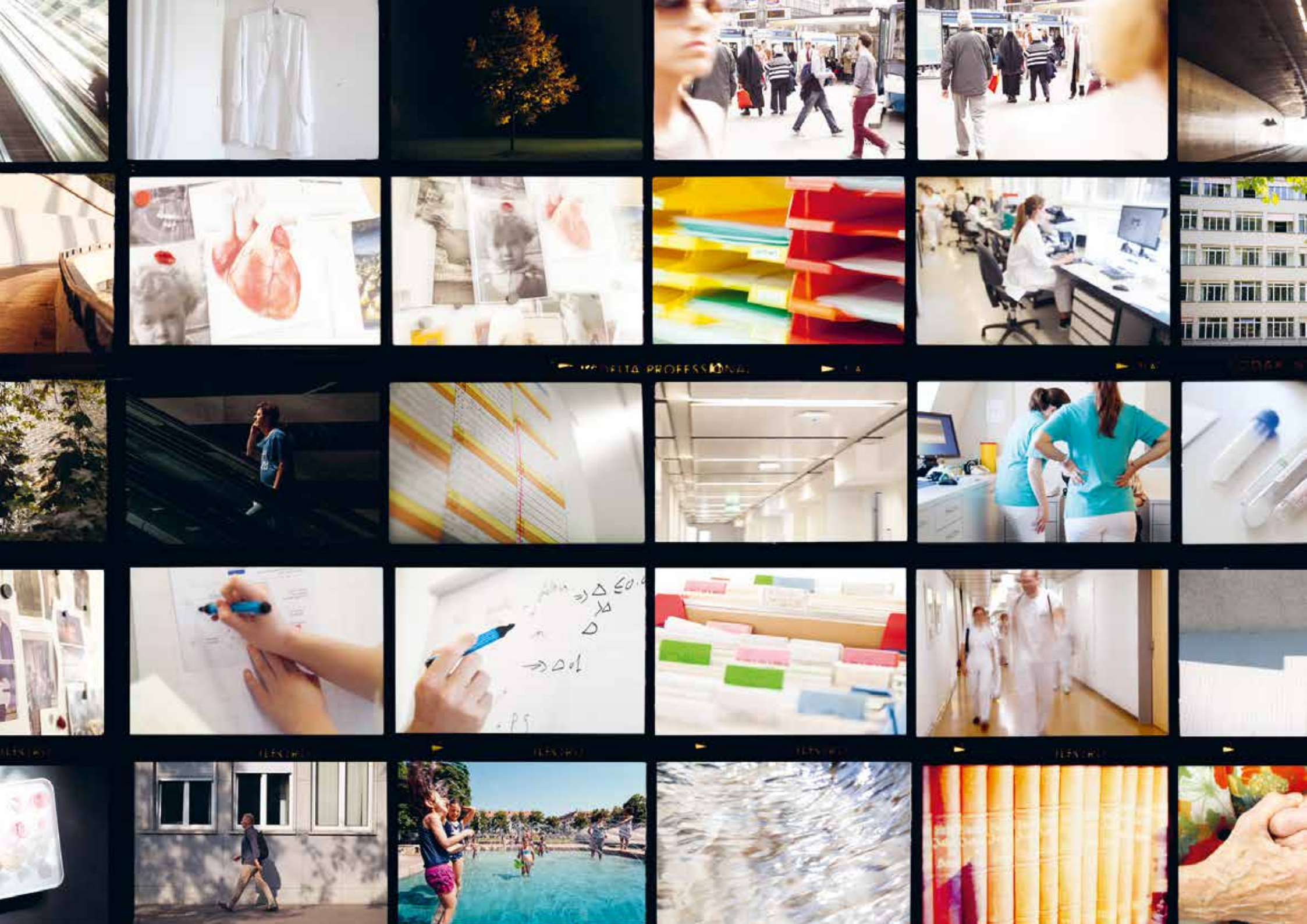
74 NRP

Smarter Health Care
National Research Programme

Programme summary

Foundations of smart healthcare of the future

Swiss National Science Foundation



Foreword 5

Executive summary 6

1. The healthcare system needs to be smarter 10

2. The growing importance of involving patients and their whole life context 14

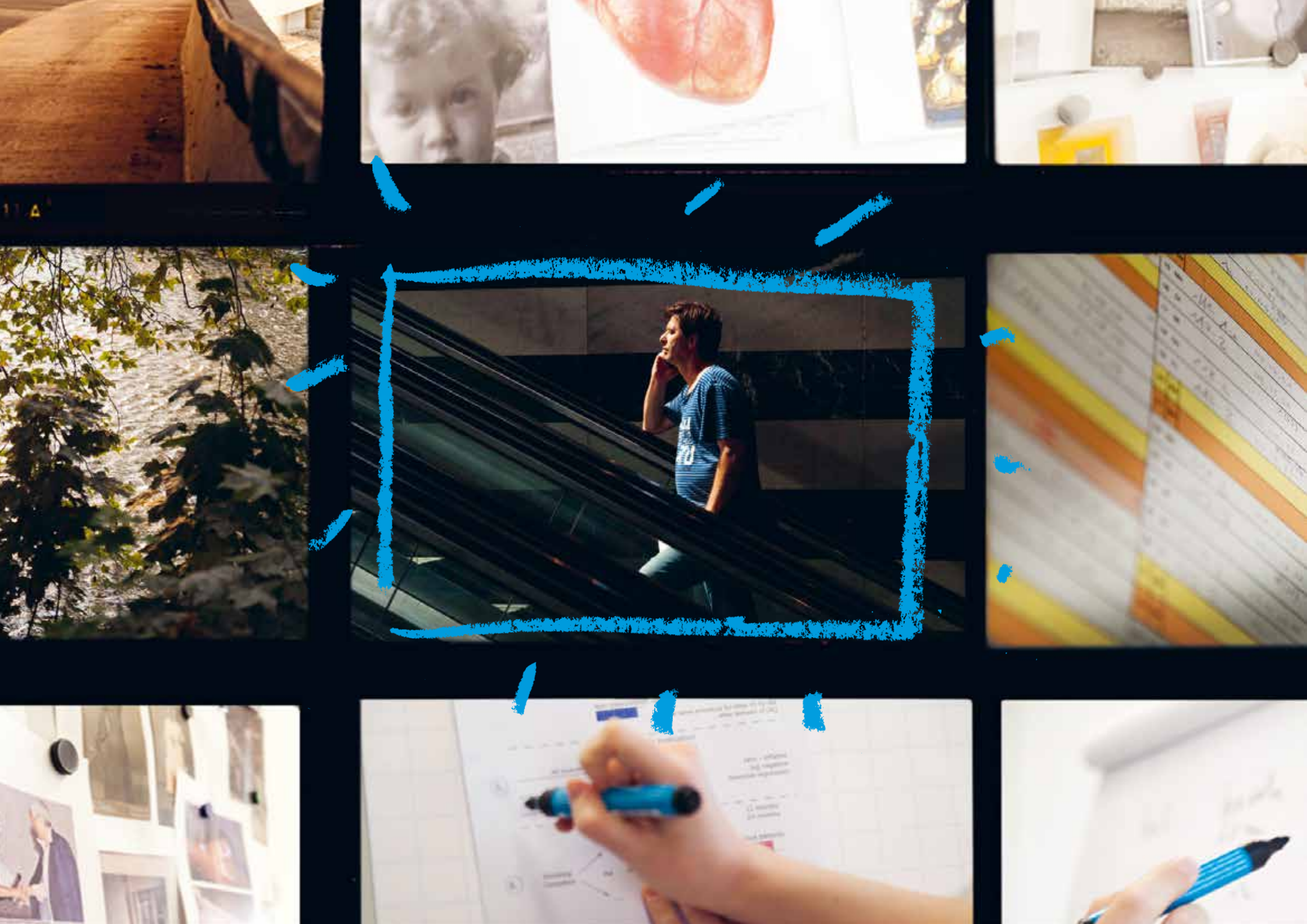
3. Strengthening the care network 20

4. Sound decision-making bases for the people who shape the healthcare system 28

5. Going forward: What comes next? 32

The Synthesis Working Papers of the NRP 74 34

The 34 projects in NRP 74 36



Foreword

Caring for and supporting people with chronic diseases is a major challenge for healthcare globally. This is particularly true for Switzerland. For the years to come, we will have to find ever more patient-centred solutions for the often-complex task of healthcare delivery. The National Research Programme (NRP) 74, "Smarter Health Care", has made important contributions on this front.

The programme was comprised of 34 healthcare research projects. These projects investigated a broad range of settings and aspects of the Swiss healthcare system, from home care of chronically ill people to rehabilitation and acute hospital care; from researching the best possible individual therapy to issues of supra-regional coordination. The large majority of these projects were conducted by interdisciplinary teams of researchers and specialists from medical and social services. They took place under real-world conditions and systematically considered implementation issues. Importantly, there was the continuous dialogue with key stakeholder groups and real-world practitioners that had started during the project phase.

This programme summary of NRP 74 presents specific results from projects by way of example and sets out the overarching findings derived from these results. These findings are the outcome of intensive dialogue within the research community as well as with many players in the healthcare system. But a programme such as NRP 74, restricted in its scope and duration, cannot address all the challenges facing our enormously complex health system. Nevertheless, the research provides many examples showing that it is possible to improve the patient focus and efficiency of care and describing ways of doing so. In addition to developing completely new approaches, researchers also examined solutions that have proven successful in other countries and cultural settings. This shows that there are many areas where we do not have to reinvent the wheel. We can rather adapt and adopt learnings from successful examples. For this reason, regular dialogue with researchers from other countries, particularly researchers in the Wennberg International Collaborative, were a great asset overall to NRP 74 and Swiss healthcare research.

On behalf of the NRP 74 Steering Committee, I would like to offer my sincere gratitude to all the researchers. Their commitment, which extended above and beyond their projects, has been crucial to the success of NRP 74. I would also like to express my thanks to the many patients who took part in projects throughout Switzerland and to the many experts from all areas of the health and social care system who supported NRP 74 in many different ways: in projects, at our annual meetings, in the Emerging Health Care Leader (EHCL) programme or by contributing to the Synthesis Working Papers.

The tremendous commitment shown by everyone who took part makes me optimistic that together, we will overcome the major challenges facing us. It is indeed to the benefit of a smart health system if we all make our contributions in our different and sometimes multiple roles of researcher, specialist, patient, politician or citizen. Together we can shape healthcare so that it fulfils our needs as effectively as possible.

Milo Puhan
President, NRP 74 Steering Committee

Executive summary

Healthcare in Switzerland faces major challenges. One of the key contributors to these challenges is the ageing population. The number of elderly people who have several chronic conditions at the same time has been growing for several years, and this trend is set to continue. The Swiss healthcare system, which is still very much geared to treating acute diseases, will therefore have to adapt. In view of this situation, the Federal Council mandated the Swiss National Science Foundation SNSF to conduct a National Research Programme entitled "Smarter Health Care" (NRP 74). Geared to applied healthcare research, the 34-project programme spent five years investigating a broad array of different aspects of the Swiss healthcare system. Its results and analyses provide a sound scientific basis for continuing to develop the Swiss healthcare system so that it can overcome the challenges of both the present and the future.

Interface issues
As one of its key action areas, NRP 74 has identified the numerous interfaces that exist, particularly in care delivery to elderly patients with multiple chronic conditions. In Switzerland's heavily specialised, decentralised healthcare system, coordination between several medical and non-medical services is a difficult task. As a result, the available resources – both human and material – are often not deployed to maximum advantage. The research conducted by NRP 74 shows that better coordination is possible, both in local care networks and at national level.

A cultural shift is needed
To get more from the available resources, it will be necessary to take a more effective – i.e., smarter – approach to connect and coordinate them. Everything must revolve around the people who are part of the care network – professionals, patients and patients' families and friends. They all need to be given the skills to think and act collaboratively and to be empowered to do so. Patients who are not sufficiently health literate find it difficult to make appropriate decisions for their own health. And healthcare professionals can only work in a more integrated and cooperative way and adopt a more holistic approach to patients' needs if the necessary framework in terms of time and remuneration is in place.

Deploying human resources more efficiently will require a cultural shift at all levels of the healthcare system. A broader understanding of healthcare and a more integrated, implementation-driven approach to it are needed.

Recommendations of the NRP 74

At the patient level

Healthcare services should become more participative and be geared to people's whole life context. This entails the following:

- Medical service providers should be involved more closely and be apprised of the patients' whole life context and – leverage this involvement by providing support for their health. For this, they should receive the necessary basic and continued professional training.
- The health literacy of all citizens should be systematically improved across all life phases and, not least, at all levels of the school system.
- Players and structures that provide reliable, patient-oriented information on the medical system and on specific issues should be supported and strengthened.
- Care models that provide guidance for patients and which are steered by both medical and non-medical services (scouting) should be promoted.

At the care network level

Interprofessional collaboration must be continuously improved:

- Medical and non-medical specialists should be trained for real-world interprofessional collaboration and contribute actively to quality improvement measures.
- Organisational, legal and financial framework conditions suitable for promoting new interprofessional collaboration models should be provided.

Primary care needs to be reinforced

- The appeal of primary care should be improved by providing suitable offerings to students plus attractive specialist training.
- Non-medical healthcare professions in primary care should be strengthened. Doctors should incorporate the correspondingly enhanced skills into their practices.

At the system designer level

- The right financial and legal framework is needed for testing innovative healthcare models and promoting those that are suitable.
- The processes and outcomes in healthcare provision should be measured more effectively and recorded in standardised data formats and structures.
- A national institution or commission on health data use in research should be set up. This entity should prepare for and coordinate necessary approval steps and provide technical solutions to improve health data management and use in research settings.

A research programme with pilot character – and for the future

To safeguard and expand sustainable healthcare research in Switzerland, the NRP 74 Steering Committee set up the "Smarter Health Care – the future of healthcare research in Switzerland" working group in partnership with important national-level players such as the Swiss School of Public Health (SSPH+), the Swiss Learning Health System (SLHS), the Conference of the Cantonal Ministers of Public Health (CMPH), the Federal Office of Public Health (FOPH), the Swiss Health Observatory (Obsan), and the Swiss Personalized Health Network (SPHN). The working group's aim is to ensure that learnings from the NRP 74 are sustainably embedded going forward.

NRP 74's Emerging Health Care Leaders (EHCL) initiative will also be continued. This innovative continuing education programme has equipped young researchers to build a network within the healthcare system that is weighted more heavily towards cooperation and integration. Creating a smart healthcare system for the future will also require a new generation of leaders who are capable of maintaining dialogue with the key players in healthcare delivery, government and public society and who can initiate sustainable health-policy decisions.

"Emerging Health Care Leaders" meeting at the NRP 74 synthesis conference in Lucerne's "Neubad", April 2022

PROFESSIONA

1. The healthcare system needs to be smarter

The Swiss healthcare system is facing a challenging future

Over the next few years, the number of elderly people in Switzerland with multiple chronic conditions will continue to grow. Analyses by the Swiss Health Observatory indicate that one in five people aged 50 or older already lives with two or more chronic conditions such as cancer, diabetes, cardiovascular disease or respiratory disease. Mental illnesses such as depression are also on the rise. This is changing the requirements the healthcare system must meet. The focus is shifting from acute to long-term medicine and care. In addition, demographic changes are making prevention and health promotion more important. At the same time, the range of treatment and nursing options is likely to continue to grow as medical technology progresses, a trend that will further increase the complexity of care delivery.

NRP 74's contribution: Evidence for health-policy debates and solutions for real-world practitioners

This is the background against which the Swiss National Science Foundation (SNSF), mandated by the Federal Council, launched the National Research Programme "Smarter Health Care" (NRP 74). The aim was not only to highlight the areas where even more can be done, but to deliver solutions that can enhance health even with the resources that are already available.

In the 34 projects that made up the programme – which was conducted over a five-year period – researchers addressed a broad array of different aspects, from communication between doctors and patients to nationwide interlinking of health data. The results show how healthcare provision can be driven forward in many areas and aligned with the challenges of the future. This does not necessarily entail completely new approaches or paradigm shifts. Instead NRP 74 research suggests real-world solutions for individual health service providers and settings and contributes robust evidence to health policy debates that have been ongoing for some considerable time now. NRP 74 has produced Synthesis Working Papers on several overarching issues. These contain significant research findings from individual projects and cover the following areas:

- Quality of Care
- Patient Participation
- Coordination and Care Models
- Cost and Reimbursement
- Health Care Data
- Building a Strong Research Community (EHCL+)

All Synthesis Working Papers are available in English at www.nrp74.ch under "Results".

One overarching finding: Improved coordination of medical and non-medical services and resources will be a key feature of care in the future

For the purposes of the six Synthesis Working Papers, researchers and members of the NRP 74 Steering Committee analysed new findings from various specialist perspectives and discussed them in the context of the broader scientific literature. A further important part of the process was dialogue with stakeholders from real-world practice, administration and politics. This resulted in the formulation of a series of recommendations on certain issues and the identification of key aspects which the Steering Committee regards as particularly important for the development of healthcare provision as a whole. This report is based particularly on one overarching finding:

> Many areas of Switzerland's healthcare system are essentially functioning well. However, the system will only be able to overcome the challenges of the future if it succeeds in coordinating existing resources within the medical and non-medical care networks more effectively.

This may seem a banal statement at first reading, but its focus is key. It does not invoke expansion of medical, therapy or care services, even further specialisation or additional financial resources, but spotlights the necessity of deriving clear gains for health, patient satisfaction and needs-appropriate treatment and care by improving coordination and increasing patient involvement.

The health system operates with a diverse array of actors and resources

Researchers and politicians agree unanimously that there is a genuine need for action to address coordination. Although efforts to integrate care have been underway since the early 1990s, the report produced on behalf of the Federal Office of Public Health (FOPH) on ways to improve the quality of the Swiss healthcare system[1] and based on broad consultation noted that there were still major shortcomings in this area. These included the lack of usable, accessible data that could be used to track the course of treatment and to establish and review treatment standards, make improvements and assess their efficacy.

An interface issue

Patient treatment and care have become ever more specialised and fragmented in recent decades. This has created a large number of additional interfaces in a system that already has heavily decentralised decision-making and funding paths, impeding information flow and collaboration between health sectors. As a result, patients must deal with an increasing number of professionals and their treatment paths are broken up into ever smaller segments.

NRP 74 investigated various settings and applications to determine where resources are being either overstretched or underused in the reality of the Swiss healthcare system and to identify the obstacles that are hampering the shift to better coordinated provision. It analysed innovative approaches to determine how medical requirements and services can be linked more effectively with patient needs in the interests of obtaining better outcomes, and it provides evidence to support the efficacy of individual measures and models. Numerous examples show that people – professionals, patients and patients' relatives – are always the starting point for viable solutions. They need to be given the skills to think and act collaboratively and be empowered to do so by means of training and suitable structures. Or, to put it differently, interface issues must not be allowed to jeopardise patient-centric, efficient delivery.

A cultural shift is required

The cultural shift that is needed to ensure human resources are employed more efficiently will require a change in mindset at all levels of the health system. A broader understanding of healthcare and a more integrated, implementation-driven approach to it are needed. Everything must revolve around the people who are part of the care network.

First and foremost, that means the patients – and in all respects, i.e. in terms of the individual situations, preferences and resources available – and then the medical and non-medical service providers with their social and professional skills. In neither case does changing mindset mean passing responsibility for this cultural shift to the people within the care network. Instead, it is a question of creating the framework conditions within which the shift can successfully take place. Patients must be able to acquire the health literacy – i.e., the ability to find and understand health-related information – necessary to take appropriate decisions in reference to their own health. Health professionals, for their part, can only work in a more integrated and cooperative way and take a more holistic approach to patient needs if the necessary framework conditions support them in doing so. In particular, this will require funding for appropriate personnel and time resources, and the upgrading of the status of primary care medicine. This is an area where research could highlight evidence-based potential solutions. Implementing these solutions will require systematic collaboration between researchers, politicians and real-world practitioners.

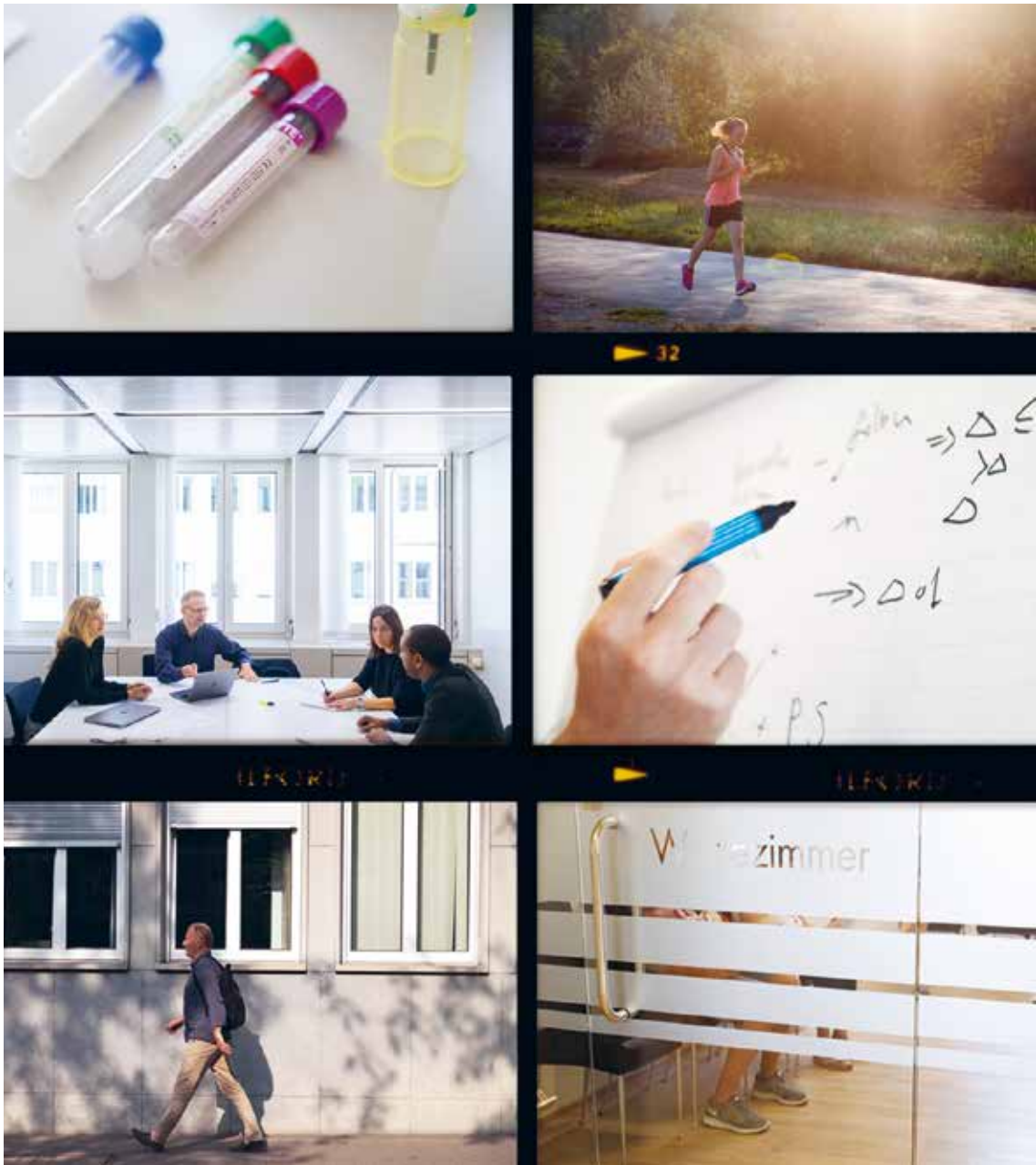
Here again a cultural shift is required. NRP 74's "Emerging Health Care Leaders" (EHCL) initiative marks a successful first step in this direction.

The meaning of "smart" in Smarter Health Care

Obtaining more from the existing resources means linking them up more effectively – or using them in a "smarter" way. In this context, "smart" refers to tailoring healthcare closely to the medical needs and preferences of patients. Applied to health promotion and prevention, it can be expressed in more general terms. Smart healthcare provision is geared as individually and comprehensively as possible to people's well-being and needs and matches the available resources to these needs. This applies both to medical services in the narrower sense and to all additional resources that are important for individual health, including family and social environment as well as the workplace or spiritual needs. Deploying these resources in a coordinated way is smart; it is where the interests of the individual overlap with the interests of society as a whole.

[1] Vincent, C. und Staines, A. (2019). Verbesserung der Qualität und Patientensicherheit im Schweizer Gesundheitswesen. Bern: Bundesamt für Gesundheit.

As part of this innovative continuing education programme for young researchers, doctoral students, postdoctoral researchers and junior doctors acquired the skills needed to build a network within the healthcare system with a greater weighting towards cooperation and integration. Creating smart healthcare provision for the future will also require a new generation of managers and leaders capable of maintaining dialogue with the key players in real-world practice, government and public society and of initiating sustainable health-policy decisions.



2. The growing importance of involving patients and their whole life context

Patient participation extends beyond purely medical considerations

Involving patients, insured persons and patients' relatives has to an increasing extent become a quality feature of both clinical practice and health policy in recent years. Patients who are well informed and feel involved can contribute to decisions on the most suitable treatment for them and are more likely to comply with those decisions. Similarly, services can be planned more specifically at healthcare service provider level if service users have the chance to express their preferences and provide feedback on their experience. The same applies at system level, for example when defining priorities in the healthcare system.

This participatory approach is set to gain further significance with ongoing demographic ageing. There is a large and varied choice of care options for chronically ill patients with multiple morbidities. Ensuring that different therapy regimens are harmonised with each other in the long term is key. Taking several medicines every day, strict diets and exercise programmes and regular doctors' appointments for check-ups can take up a lot of space in patients' lives. In addition, they often require a high level of discipline and personal dedication.

This makes it all the more important to gear these health-related measures to the needs of the people affected. Involving them in medical decisions at all levels will contribute to this. However, to achieve the best possible individual outcome for chronically ill patients with multiple morbidities in particular, it is necessary to look beyond the purely medical considerations. To a large extent, mental, social and economic factors affect individuals' health and their options for taking care of their own health. Family situation, income and living conditions can have both a beneficial and inhibiting effect. Healthcare provision that takes account of people's whole life context in a resource-oriented way in pursuit of this goal will achieve better outcomes in a cost-efficient way.

Research projects conducted as part of NRP 74 have shown that real-world implementation of this approach is possible, as the following examples illustrate.

In **project 31**[2], **Development of caring communities for long-term care at home (Heidi Kaspar)**, researchers developed new models for long-term care enabling elderly people to remain living at home despite health-related limitations. Since this often requires complex, time-intensive support, responsibility for care is shared between professionals, volunteers, neighbours and family members. Working closely with the local authorities in Münsingen, Belp, Obfelden and the Schwamendingen district of Zurich, researchers set up care networks to deliver this support in the municipalities in question. These networks work with different partners, depending on the municipality, and include for example local home care organisations, churches, neighbourhood organisations and private individuals. The initiatives that have been developed link up local services and players and create permanent structures and activity offerings, such as assistance with using digital media. The researchers used the experience gained to create the "Caring Community Building Blocks toolbox". This provides guidance and assistance on setting up caring communities.

In Switzerland, migrant women with chronic diseases use health services less than other chronically ill people. Researchers in **project 1**, **Patient experiences help improve health care for migrant women (Thomas Abel)**, identified the social, economic and cultural factors responsible for this. Interviews and focus group discussions with affected women of Portuguese, Turkish and German origin, as well as with Swiss women and professionals, showed firstly

[2] For an overview of all the projects, see pages 36–37

that social factors are key to explaining the difference and secondly that these factors can be leveraged to improve the situation. Thus, the researchers recommend improving access to social and nursing services and self-help groups at municipality and neighbourhood level, while actual medical care should record and address the women's biographical backgrounds and the living conditions that are relevant to their health.

In the last 30 years, home care for patients with acute psychiatric disorders has both aroused hopes on many fronts and raised questions. The results of **project 8**, Treating people with acute mental illnesses at home (Luca Crivelli), show that this type of care represents a possible, safe, economical and effective alternative to standard inpatient treatment. The project's background is the closure of a ward at Ticino Cantonal Psychiatric Clinic in 2016. A new service offering psychiatric treatment at home was subsequently created for patients in the Bellinzona and Valli area. Although this form of treatment in the community was already widespread in English-speaking countries in particular, there were still little data on its effectiveness and cost-efficiency in the Swiss health system. The project showed that the clinical efficacy of home care was comparable to inpatient treatment, but that costs were lower. The follow-up phase in particular exhibited a positive cost-benefit ratio. Overall, patients, their relatives and health professionals perceived home treatment as a diversity-oriented, high-quality and strongly patient-centred offering.

Each year, around 4,300 people in Switzerland develop colorectal cancer and about 1,700 die of the consequences of the disease. Regular precautionary screening would halve this risk, yet only 40 percent of eligible people make use of the service. **Project 2**, Participatory methods promote participatory decisions in colorectal cancer screening (Reto Auer), employed participatory methods to encourage primary care physicians to give their patients the choice of a colonoscopy or a much less invasive faecal occult blood test. The researchers developed multi-part, data-driven interventions to train primary care physicians and produced communication materials for participatory decision-making in screening discussions with patients. The aim was to offer patients a wider choice of options. The fact that the number of patients actually screened rose significantly was a fortuitous side effect that has been observed in other studies. Where patients have the choice of two options, around half will choose the less invasive procedure. This led the researchers to conclude that their participatory approach is capable of improving both individual and public health.

Looking at life context requires special skills

Expanding the perspective to include patients' whole life context is a challenging task. It requires medical professionals to look beyond their specialist field – and thus often also beyond purely biological and medical questions – to consider how a particular individual can be given the best possible care. Not least among the requirements for doing so is effective communication with patients. A study of primary care physicians shows that they regard spiritual, cultural, ethical and legal considerations as at least equally important in the care of patients in the end-of-life phase as pain and symptom management, but do not feel sufficiently qualified to systematically address these issues.[3] Furthermore, there is currently a lack of care models under which doctors and other health service providers can call on services that specialise in social or spiritual needs.

The following NRP 74 research projects successfully trialled measures that enable medical specialists to take greater account of patients' whole life context.

[3] Giezendanner S, Jung C, Banderet H-R, Otte IC, Gudat H, Haller DM, et al. General practitioners' attitudes towards essential competencies in end-of-life care: A cross-sectional survey. PLoS ONE. 2017;12:e0170168.

Project 20, Successful integration of the spiritual dimension into chronic pain therapy (Simon Peng-Keller), began by conducting focus group interviews and a quantitative survey to determine what the needs of patients with chronic pain are in terms of incorporating spiritual aspects into multimodal pain therapy, and how these needs can be recorded. The study showed that more than half of patients with chronic pain want spiritual aspects to be included in their care. Researchers subsequently developed a communication model that helps health professionals integrate spiritual aspects into communications with patients. This model was used as the basis for an e-learning tool to strengthen healthcare professionals' communication skills. In a follow-up study, they were able to demonstrate that after training, the professionals were more successful in perceiving chronic pain patients' spiritual needs and in integrating them into discussions.

Various socio-cultural factors can affect the sceptical attitude towards vaccination among parents of adolescent children and result in them not having themselves or their children fully vaccinated, or else vaccinated only later than recommended or even not vaccinated at all. In **project 28**, Vaccine-sceptical patients and doctors in Switzerland (Philip Eduard Tarr), researchers analysed these factors. Their work focused particularly on the perspectives of people who consult providers of complementary medicine, using extensive surveys to investigate how their motivation differs from that of parents who rely on conventional medicine. In addition, they observed vaccination advice discussions in conventional and complementary medical settings and surveyed participants' views on vaccination. They found that conventional physicians and complementary medicine practitioners have distinctly different approaches to communications with their patients. The complementary medicine practitioners took more time, took sceptical patients' misgivings seriously and used shared decision-making to involve them in the decision on vaccination.

It also emerged clearly that conventional physicians, complementary medicine practitioners, nursing professionals and midwives would all like additional training to improve their understanding of vaccination. To reach the target group of vaccine-sceptical patients more effectively, the researchers propose partnering with vaccine-sceptical complementary medicine providers to develop information and communication tools on vaccination.

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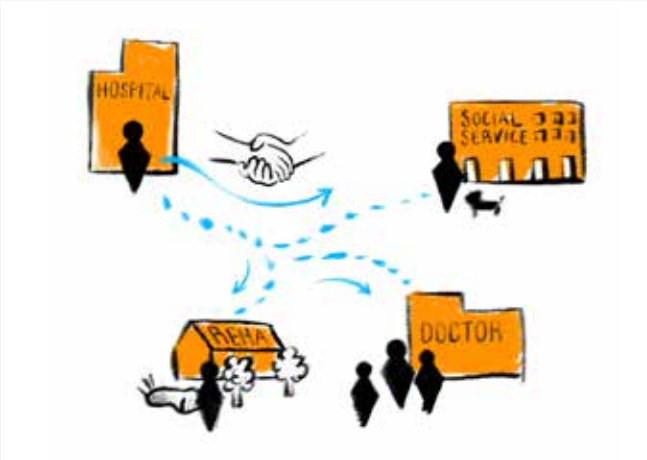
Guidance empowers patients to input their own resources

A participatory approach demands a lot from patients too. Those who want to increase their participation in healthcare delivery, weigh up their preferences and make decisions require a large volume of information. This also presupposes that patients actually want to be involved in decisions. If they do not, service providers must respect their choice. People's willingness and ability to be involved are both closely linked to their health literacy.

A highly health-literate population is better able to both avoid disease and navigate the healthcare system, when necessary, thereby helping enhance its efficiency. Once again, there is particularly great potential for efficiency gains in the care of patients with multiple chronic conditions, since an opaque situation where there is a risk of both duplication and omissions can very quickly develop owing to the large number of medical and non-medical services involved. However, better guidance can also contribute to improved health outcomes and resource efficiency in other areas, as one NRP 74 project shows.

In **project 5**, **Case management reduces the number of ED visits and promotes patients' quality of life in frequent users (Patrick Bodenmann)**, researchers implemented and tested a case management (CM) intervention for patients who make above-average use of the emergency departments at eight hospitals in French-speaking Switzerland. Many of these patients have multiple medical, psychological, substance-related and social issues.

An important part of the intervention therefore involved referring them to other – frequently non-medical – care services on the basis of a holistic assessment conducted jointly with the patients. The results show that this CM intervention is viable in the real-world setting and leads to a reduction in emergency consultations and to improved quality of life for patients.



Recommendations of NRP 74

At the patient level

Healthcare services should become more participative and be geared to people's whole life context. This entails the following:

- Medical service providers should be involved more closely and be apprised of the patients' whole life context and – leverage this involvement by providing support for their health. For this, they should receive the necessary basic and continued professional training.
- The health literacy of all citizens should be systematically improved across all life phases and, not least, at all levels of the school system.
- Players and structures that provide reliable, patient-oriented information on the medical system and on specific issues should be supported and strengthened.
- Care models that provide guidance for patients and which are steered by both medical and non-medical services (scouting) should be promoted.

3. Strengthening the care network

Improving coordination of existing services and resources

Older patients and patients with chronic or multiple conditions generally require a range of medical and non-medical treatments and therapies. Such multidisciplinary care can only reflect patients' needs and wishes if it is effectively coordinated. If it does not, the result is not only duplication and unnecessary diagnostic procedures, but also gaps in care or even improper provision of services. Affected patients suffer perceptible shortcomings in the quality of their care. However, the situation is also unsatisfactory for the people working within the care network and generates higher overall costs for the healthcare system in general.

The current shift from acute to long-term provision and care is continuously driving up this need for coordination. The interfaces and points of contact between different service providers, specialist disciplines, institutions and funding agencies are particularly sensitive. Since the 1990s, there has been a broad political consensus on the importance of promoting coordination within the Swiss health system, given its heavy differentiation in terms of medicine, nursing and treatment and its fragmentation in terms of participating players. While appropriate efforts are being made, implementing viable solutions remains a challenge.

A variety of coordinated care models were designed – or trialled and implemented – during NRP 74, highlighting the obstacles that efficient coordination has to overcome and the mechanisms that contribute to its success.

Collaboration is an acquired skill

Improved coordination across the entire treatment path begins with the people who work in the healthcare system, including both medical and non-medical service providers. They need to increase linking and coordination between each other and within the extended healthcare system. Or more accurately, they need to be empowered to do so.

Continuously improving practical and interprofessional collaboration relies on both sides of the relevant interfaces having specific additional knowledge. This is the only way of coordinating existing services and bringing together human resources and skills. In turn, this means medical and non-medical professionals having access to the necessary part-time training and continuous education opportunities. Several projects conducted as part of NRP 74 illustrate the importance of such targeted training in a variety of settings.

Among other things, **project 27**, Nurse-led care models reduce unplanned hospital admissions (Michael Simon), developed and trialled a care model suitable for nursing homes of different sizes and with varying resource levels. Giving nurses the necessary knowledge of geriatric care empowered them to take charge of clinical management and coordinate collaboration with primary care physicians and hospitals. The results confirmed that nurse-led models of this type reduce unnecessary hospitalisations, since medical provision for a large number of ailments – such as chronic disease and/or reliance on nursing care – can be adequately supplied in the outpatient setting or in a suitably equipped nursing home. This presupposes, however, that both primary care physicians and nursing home staff receive support for their role and work together on equal terms.

In **project 6**, Interprofessional quality circles improve medication in nursing homes (Anne Niquille), researchers trialled an interprofessional intervention designed to reduce the problem of overmedication and the use of inappropriate medications and thus improve the health status and quality of life of elderly people. The trial took the form of two randomised controlled studies in 58 nursing homes in the cantons of Vaud and Fribourg.

Nurses, physicians and pharmacists at the participating homes discussed medication issues in regular "quality circles", for which they were assigned defined roles and competences. The project used this interprofessional model to explore the possibilities and limitations of deprescribing by means of internal guidelines and medication reviews.

Use of inappropriate medication generally tended to decrease, and proton pump inhibitor use was reduced significantly. There was no increase in falls or the need for physical restraint. However, the effects on hospitalisation and mortality were unclear.

Bringing the people at the interfaces together

Other projects directly addressed the interfaces between specialisms, disciplines, institutions and sectors, and examined innovative approaches to collaboration between healthcare professions. It was found that improvements are often achieved when dividing lines and transitions are more carefully delineated through the lens of patient wellbeing and defined with greater clarity in pursuit to an extended concept of health, then embedded in the broader context.

For example, delaying the discharge from hospital of patients who are in a stable medical condition can be detrimental to their recovery process in addition to generating unnecessary costs

Project 18, **Interprofessional discharge planning reduces length of hospital stay (Beat Müller)**, demonstrated that using an innovative digital tool to support coordinated interprofessional planning of patient discharges can reduce the amount of time vulnerable patients spend in hospital with no subsequent increase in readmissions or death rates. In addition to medical and nursing specialists, an important part in the process is played by social workers, who resolve essential organisational issues within the team at an early stage, provide close support for patients and their relatives and supply information on the necessary follow-up nursing care in the outpatient setting.

Project 17, **An improved dementia diagnosis requires a closer cooperation of health and social actors (Barbara Lucas)**, examined various cantonal strategies and measures for diagnosing dementia. As one of the main causes of elderly people needing nursing care, dementia is a significant burden on the health system. Early diagnosis is therefore considered to play an important role. However, the study shows that there is still a lot of debate about the benefits and disadvantages of early diagnosis. Moreover, better early diagnosis requires improved coordination between the structures that make the diagnosis on the one hand and, on the other hand, the health and social care professionals who have to deal with the effects of that diagnosis on patients and their relatives. The study also points out that the wide range of different dementia strategies has resulted in an absence of equitable access to early dementia diagnosis for patients in Switzerland.

Organisational, legal and financial requirements for the correct framework

New models of interprofessional collaboration require a suitable organisational, legal and financial framework. Creating a national framework is no easy undertaking, given the federalist nature of Switzerland's care system. However, NRP 74 has demonstrated that this decentralised structure also offers scope for implementing one-off solutions and innovative approaches from the bottom up. While there are no panaceas, it is nevertheless possible to gain insights that can be transferred to other settings and possibly even expanded.

Project 16, Cantonal differences make it difficult to form regional palliative care networks (Brigitte Liebig), used a survey of primary care physicians, professionals in hospices, nursing homes, social care and spiritual welfare and the relatives of patients in palliative care to identify possible approaches to improving palliative care in Switzerland. There was a need for action in everyday care delivery, particularly at the interface between outpatient and inpatient care – firstly as regards collaboration between care providers and secondly as regards care service coordination. The results of the project show the need to interlink service providers across cantonal boundaries and care sectors at organisational and IT level, but also in terms of professional mindsets. In particular, primary care physicians need to be deliberately integrated into care networks to a greater extent. Furthermore, e-tools are still too little used in communication between carers, and the key role of nurses in coordinating tasks is insufficiently recognised and used. In the palliative care sector, there is also a strong need for increased interprofessional training for all participating professionals, appropriate funding for care services and clear monitoring of care quality.

No adequate primary care without coordination

According to the legislation on primary care, "close and carefully coordinated collaboration between different healthcare professions" provides the foundation for adequate primary medical care that is accessible to everyone in Switzerland. The law cites general practice as one of the key pillars of this primary care. According to an investigation by the Institute of Family Medicine at the University of Zurich, general practitioners are able to provide full treatment for 94.3 percent of all health problems[3]. However, Switzerland is experiencing is a shortage of general practitioners that is set to get worse over the next few years.

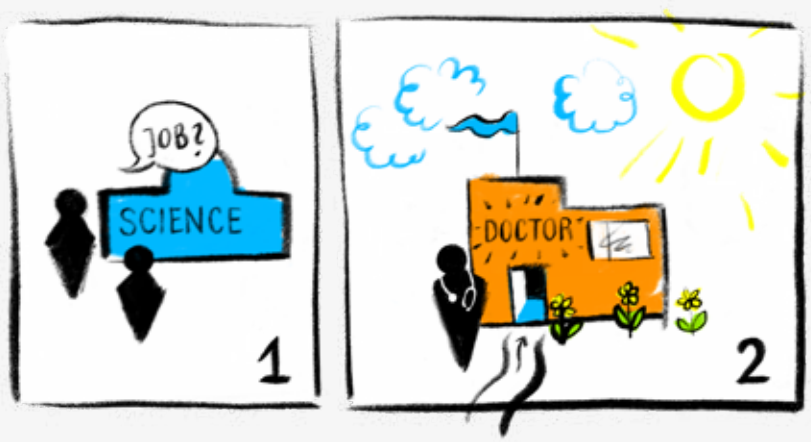
Here, too, the crucially important primary care sector can only operate as an efficient and sustainable network within the Swiss healthcare system if the interaction between the resources within it – particularly the human resources – is as smooth as possible. This means firstly strengthening general practice and finding ways of enhancing its appeal to young doctors. Secondly, the key role played by the non-medical health staff who nevertheless already carry out a substantial number of medical tasks in primary care should be recognised and further strengthened.

[4] Referral rates in Swiss primary care with a special emphasis on reasons for encounter. Swiss Med Wkly. 2015;145:w14244, Ryan Tandjung, Andreas Hanhart, Fredi Bärtschi, Rebecca Keller, Andy Steinhauer, Thomas Rosemann, Oliver Senn, Institut für Hausarztmedizin Zürich

This is not solely a matter of offering economic incentives, but of highlighting development perspectives, upgrading roles, providing access to additional training and promoting a level playing field for collaboration between all primary care players.

It is only possible to successfully care for people who have diseases in the advanced stage in their own home if there is an effectively coordinated and proficient local network. This is supported by **project 11**, End of life: more quality and less suffering through better planning and coordination? (Steffen Eychmüller), which investigated the benefits of a mobile palliative care service in partnership with the Spitex home care organisation and general practitioners. In qualitative terms in particular, this approach shows that it is possible for patients to experience a self-determined end of life in familiar surroundings and with an unchanging feeling of security for them and their relatives even though they may have complex symptoms. The service revolves around a plan that is negotiated jointly with patients and their relatives. This plan helps them to help themselves if there are complications and includes a clear information and rescue chain. This model improves not only patients' quality of life, but also the satisfaction levels of participating relatives and health professionals.

Project 13, The closure of general practices can lead to regional undersupply and more costly consultations (Michael Gerfin), which evaluated a data set comprising more than 200,000 patients, delivered accurate figures on the challenge that diminishing GP numbers represent to primary care and, in particular, regional continuity of care. When a GP practice closes, 12 percent of consultations are lost as a result. Half of these at most are replaced by treatment by a specialist or in hospital. The percentage decline in consultations is significantly more pronounced in regions with a low GP density, indicating that people in peripheral regions who lose their GP have difficulty finding a new one. At the bottom line, therefore, care services are declining, whereas costs remain the same. Although fewer people go to the doctor, those that continue to do so consult specialists or go to hospital, both of which are more expensive.



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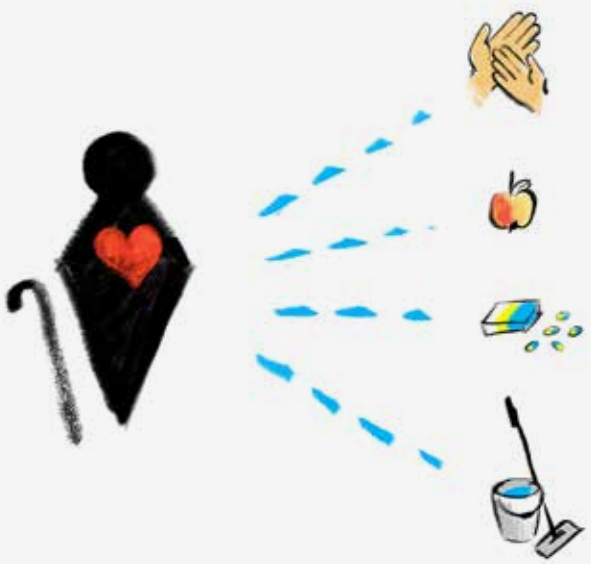
In **project 30**, Integrated community-based care for home-dwelling older people (Sabina De Geest), researchers evaluated a nurse-led, coordinated and community-based care model for the long-term care of the elderly. The project's aim was to improve the quality and efficiency of care at home so that elderly people are able to live in their own homes for longer. It also set out to make a contribution to reducing health costs. Since elderly people often have several chronic conditions, their care frequently involves a number of service providers. This situation leads to fragmented care. In this model, professional care assumes a key role, coordinates the services provided in their entirety and thus helps reduce the primary care burden.



Recommendations of NRP 74

At the care network level

Interprofessional collaboration must be continuously improved:

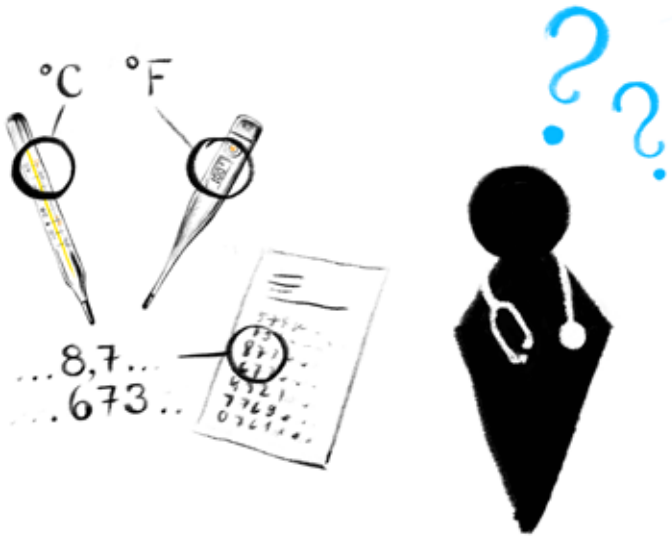
- Medical and non-medical specialists should be trained for real-world interprofessional collaboration and contribute actively to quality improvement measures.
- Organisational, legal and financial framework conditions suitable for promoting new inter-professional collaboration models should be provided.

Primary care needs to be reinforced

- The appeal of primary care should be improved by providing suitable offerings to students plus attractive specialist training.
- Non-medical healthcare professions in primary care should be strengthened. Doctors should incorporate the correspond-ingly enhanced skills into their practices.

4. Sound decision-making bases for the people who shape the healthcare system

Faced with a constant stream of new challenges, the healthcare system is in a state of permanent flux. This report currently identifies the need, among others, to incorporate patients' resources more systematically outside the purely medical context and to improve coordination between service providers. But other, equally important factors and new focal areas will emerge in the future. There is thus a need for constant steering – primarily at a structural level, with new incentives being created in particular by adapting the economic and legal framework.



New approaches need comparable data

However, because interventions in these structures have far-reaching consequences for the system as a whole and impact millions of people, the reasoning underpinning them needs to be sound and it must be possible to evaluate their effects. It is therefore important initially to test new approaches – from community-based care models for the elderly to new tariff structures – on a small scale.

To assess the impact of measures and ensure they can be modified if needed, it is also essential to have a pool of strong data that are reliably comparable across the entire system. However, this applies not only to trialling new approaches, it is also of paramount importance to setting the course of healthcare provision in general. This has now also been recognised by politicians, and various efforts to improve the healthcare data situation have been launched. NRP 74 projects have researched real-world solutions for specific areas.

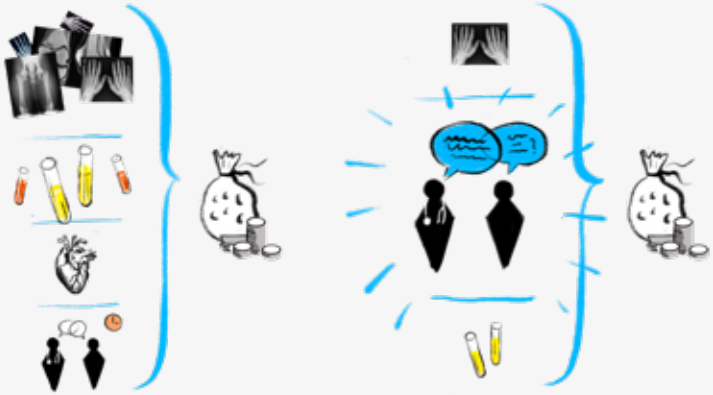
For example, researchers working on **project 21**, Standardised assessment and reporting system for functioning information (Gerold Stucki), developed a uniform metric that can be used to compare outcome quality indicators for different rehabilitation clinics more accurately and thus more fairly. Using the WHO's International Classification of Functioning, Disability and Health (ICF) as a reference system and applying various methods, the project demonstrated that it is possible to standardise the data that are routinely gathered in different rehabilitation centres using different measuring tools. Prediction models can then be used to describe and observe changes in functioning in clinical care.

Project 24, Spitex uses its data to optimise client satisfaction and quality of care (Julia Dratva), investigated ways of improving the quality and representativeness of the data recorded by the Spitex home-care organisation in Switzerland to make them usable for generally applicable analyses. Working with experts and nursing professionals, the researchers developed an indicator set for measuring nursing quality that represents an important basis for improving the data situation and thus also the quality of home care.

Other NRP 74 research projects investigated the effects of interventions in the tariff system or different insurance models on care. They prove that existing data can be used to answer important questions. At present, however, analysing this data often entails a significant workload and cannot be undertaken regularly. For this reason, some projects focused on issues associated with data collection and processing. In addition, an NRP 74 working group analysed the current situation regarding the use of routinely generated health data for research. Its "Health Care Data" working paper highlights the highly fragmented nature of the current data landscape and sets out recommendations to improve the situation.

Researchers working on **project 12**, Flat-rate reimbursement helps avoid overtreatment and reduce healthcare costs (Stefan Felder), used GPs' insurance billing data to investigate how a tariff change introduced in 2014 had affected their behaviour. The reimbursement for basic consultations was raised by CHF 9 per consultation, whereas that for technical services of the type typically billed by specialist doctors (e.g. imaging services) was reduced. The goal of the reform was to create financial incentives to support the shift in care away from specialists to primary care physicians. The results show that there was a clear shift in behaviour even during the first year after the reform was introduced. Consultations billed by GPs increased both by month and by patient, while the number of technical services declined. The amount of time the GPs spent on each consultation also decreased.

In **project 32**, How to improve care coordination for people with chronic conditions in Switzerland? (Joachim Marti), researchers investigated continuity of care among individuals aged 50 years or older and ways of improving care coordination. The researchers analysed health insurers' billing data for 200,000 people among over-50s for the 2015 – 2018 period and recorded how often they changed health service provider. They found that continuity of care tends to be low, but that the data recorded are still comparable with those in other OECD countries. However, a different picture emerges if only primary care is considered. Here the majority (70 percent) of people only consulted a single primary care provider, a finding that is indicative of a very high level of continuity. Complex health needs and insurance models that



included gatekeeping ("GP model") were positively associated with a high continuity of care. However, continuity varied considerably depending on the nature of the disease.

To learn more about the preferences among the over-50s in terms of alternative insurance models that would improve coordination, the researchers also conducted a survey of nearly 1,000 people in French-speaking Switzerland. One of the things to emerge from the results was that people in Switzerland aged 50 years or older have a relatively strong preference for the status quo. In addition, the people surveyed attached great importance to coordination by one clearly defined agency. Their preference here was for GPs. The amount paid in monthly premiums was a further important consideration. Overall, though, researchers found that preferences varied greatly, but that a majority of the people surveyed were open to a certain amount of reform. Younger, progressive people were more open to reform, whereas more conservative people were happy to remain with the status quo.

There is an urgent need for solutions capable of linking up health data in Switzerland more effectively so that they can be used for research and for steering the care delivery system. Researchers elaborated such solutions in **project 10**, Promoting the merging of health data in Switzerland (Bernice Simone Elger) focusing on routine data and on data from research projects. They first evaluated and compared projects from Switzerland and Denmark – which is regarded as extremely progressive in its approach to health data use – to identify beneficial factors and obstacles. These were subsequently analysed with a large number of specialists and used to develop recommendations for Switzerland in a consensus-driven process with the specialists. The recommendations give political decision-makers a valuable starting point for the onward development of governance and infrastructure for health data, in addition to showing health database operators how they can simplify data exchange.

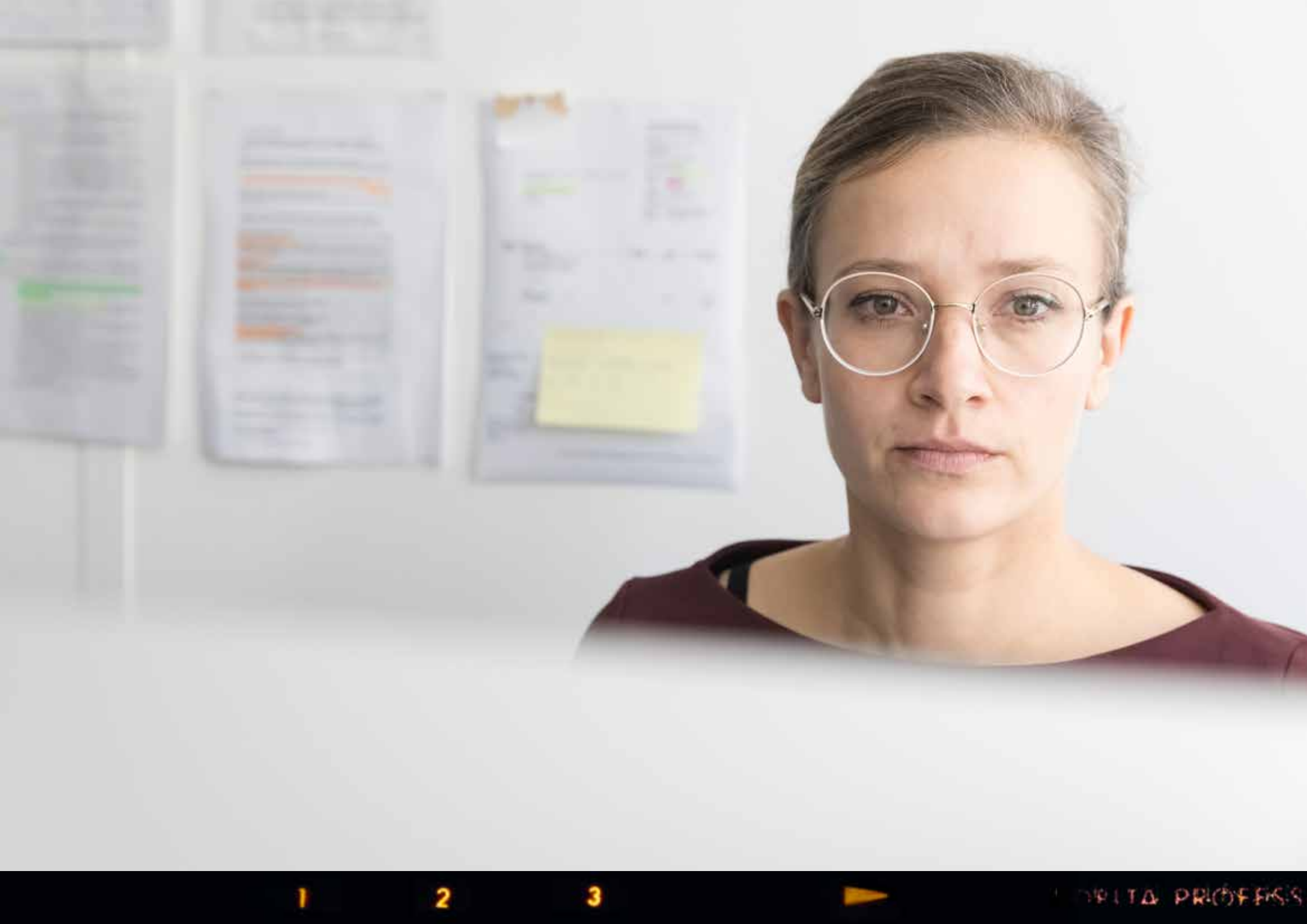
The research team working on **project 7**, Routine data from primary care practices serve to improve the healthcare system in Switzerland (Corinne Chmiel), refined the first – and as yet only – database in Switzerland to record routine clinical data on outpatient care at national level. It should be noted that very few data have been available up to now, particularly in the outpatient setting. The FIRE project has been in existence since 2009. When this NRP 74 project started in 2017, there were 231 participating GPs in 13 cantons. As the study progressed, this number tripled. In the end, around 700 GPs from over 200 practices in German-speaking Switzerland were exporting anonymised routine clinical data from their electronic medical records to the FIRE database. This is equivalent to around ten percent of all practising GPs in Switzerland.

One important goal of the project was to identify the conditions under which practices would be willing to share data with the FIRE project. These included financial compensation for the additional work involved. Expanding the FIRE database and improving data quality and availability has created a reliable and robust pool of data for researchers and thus for the further development of outpatient care.

Recommendations of NRP 74

At the system designer level

- The right financial and legal framework is needed for testing innovative healthcare models and promoting those that are suitable.
- The processes and outcomes in healthcare provision should be measured more effectively and recorded in standardised data formats and structures.
- A national institution or commission on health data use in research should be set up. This entity should prepare for and coordinate necessary approval steps and provide technical solutions to improve health data management and use in research settings.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5. Going forward: What comes next?

NRP 74 has shown that applied healthcare research is capable of making an important contribution to overcoming the challenges facing the Swiss health system at the present time and in the future. It has investigated the efficacy of care services and equity of access to them, as well as the safety and resilience of healthcare provision in everyday circumstances. By doing so it has provided sound scientific principles and analyses that can be used to further refine the healthcare system and set its course for the future.

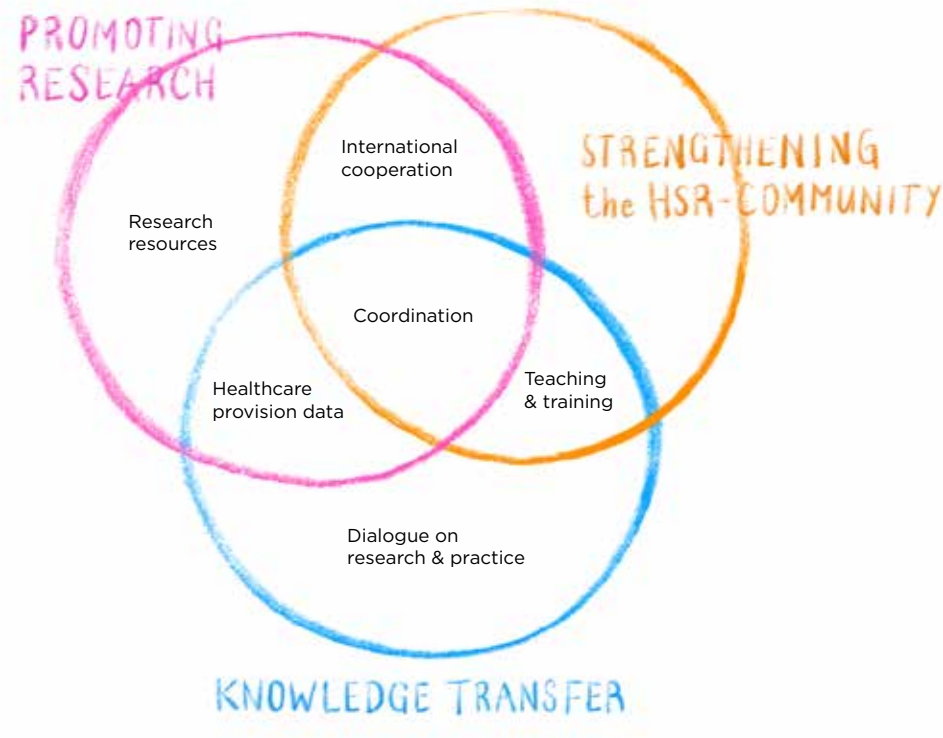
We therefore attach great importance to safeguarding and expanding sustainable healthcare research in Switzerland. To this end, the NRP 74 sought collaboration with key national-level players who have been working in this field for several years. With them the "Smarter Health Care – the future of healthcare research in Switzerland" working group was founded. Working group members include, for example, the Swiss School of Public Health (SSPH+) and the Swiss Learning Health System (SLHS), two organisations that encompass a large number of universities and universities of applied science. The federal government and "lead cantons" in the Swiss healthcare system are also on board in the form of the Swiss Conference of the Cantonal Ministers of Public Health (CMPH), the Federal Office of Public Health (FOPH), the Swiss Health Observatory (Obsan) and the Swiss Personalized Health Network (SPHN).

Research, dialogue, networking and teaching
The future of healthcare research depends on a lot more than just funding. While adequate research funds are obviously essential, it is just as important to further develop the dialogue between researchers, practitioners and politicians in the interests of efficiently pooling the healthcare-related expertise available in Switzerland. Continuing the EHCL training programme for young researchers will play an important role here. This unique platform for dialogue on healthcare research needs to be sustainably strengthened by the involvement of young stakeholders from real-world practice and from government. There is also a need to improve the quality and availability of health data, to enhance the coordination at the interfaces between the different levels of the health system and to undertake targeted efforts in education and teaching.

International healthcare research
With healthcare research also becoming increasingly important internationally, knowledge- and experience-sharing with international partners is correspondingly important for Switzerland. It is therefore heartening that the SNSF, Innosuisse and FOPH are part of the "European Partnership on Transforming Health and Care Systems", a major research initiative that aims to develop innovative, viable, financially sound and scalable solutions at EU level in support of healthcare systems as they transition to greater resilience and sustainability. Also important is the longstanding close collaboration between the Wennberg International Collaborative (WIC) and Swiss researchers and political decision-makers, which aims to promote greater innovation in healthcare research.

Options for the future
The initiators of "Smarter Health Care – the future of healthcare research in Switzerland" firmly believe that the impetus resulting from NRP 74 is strong enough to sustainably embed all these elements as concepts and in terms of funding, and thereby create a framework for strong and viable healthcare in Switzerland. Thus, close collaboration with SSPH+ and SLSH and the dialogue with key players in research, government and real-world practice, which has been ongoing as part of the research programme for years, offers the option of submitting a funding application to foundations working in the healthcare sector, for example. Continuing the EHCL programme will also require financial resources, as reliable coordination structures will have to be created if it is to be successfully embedded and expanded. The "Smarter Health Care – the future of healthcare research in Switzerland" project will therefore be continued.

In its five years of intensive research work, as well as in its dialogue with everyone who has a stake in the healthcare system, NRP 74 has created the foundations of a strong community. This community remains after the programme's conclusion. It must now take up the task of continuing dialogue at all levels of care delivery. In a first step, this will mean assessing the feasibility and scalability of the real world-centred findings produced by many NRP 74 projects with



"Smarter Health Care – the future of healthcare research in Switzerland" working group

the relevant cantonal- and federal-level players, as well as with service and funding providers, advice centres, self-help organisations, etc. How could new approaches to cooperation that have been tested in a research environment be broadly rolled out in the real world? Which models could be proliferated, which solutions could be strengthened under existing legislation and where does the legal framework require amendment?

NRP 74 has answered many questions. To that extent, this report provides a solid knowledge-based foundation for the discussions that researchers, practitioners and politicians now have to jointly hold in order to ensure that healthcare provision in Switzerland follows a development path that is secure in the long term, geared more closely to cooperation and integration – and thus smart. The NRP 74 Steering Committee is confident that the momentum created by NRP 74 will help spark this crucial debate.

The Synthesis Working Papers of NRP 74

The NRP 74 Synthesis Working Papers analyse the research covering six overarching subject areas and formulate recommendations on how healthcare provision can be developed in these areas. They are intended for a professional audience and have been published in English. All the NRP 74 Synthesis Papers are available at www.nrp74.ch.

Synthesis Working Paper
Quality of Care
Good-quality healthcare provision comprises many different aspects, from patient safety and achieved outcomes to economic efficiency and equality of opportunity for all. The "Quality of Care" Synthesis Working Paper discusses ways of measuring and improving quality in different healthcare sectors in the light of the research conducted by NRP 74. Among other things, it recommends the nationwide introduction of standardised indicators that provide transparent and comparable quality measurements. It also recommends including patient experience in quality assessments to a greater extent.

Synthesis Working Paper
Patient Participation
Where patients are able to contribute to decisions on treatment and prevention, this can have a positive effect on outcomes. However, this is only possible if they are well informed and willing to be involved. The "Patient Participation" Synthesis Working Paper addresses the background to this fairly recent approach and analyses possible ways of increasing patient involvement by drawing on NRP 74 projects. On this basis it identifies four action areas where patient participation can be promoted by various measures. Not least of these is strengthening patient organisations.

Synthesis Working Paper
Coordination and Care Models
Chronically ill patients with multiple morbidities often need several medical and non-medical care services at the same time and over a protracted period. However, the high level of specialisation within the Swiss healthcare system gears it primarily to individual diseases. The "Coordination and Care Models" Synthesis Working Paper analyses NRP 74 projects in terms of their potential for greater coordination within the health system. It identifies the need for interprofessional collaboration, strengthened non-medical healthcare professions and greater consideration of non-medical factors in care.

Synthesis Working Paper
Cost and Reimbursement
The already high cost of the Swiss healthcare system is set to rise even further, not least as a result of demographic trends. It is therefore important to deploy resources as efficiently as possible while ensuring consistent quality of medical care. The "Cost and Reimbursement" Synthesis Working Paper analyses the results of individual NRP 74 projects from a health economics perspective and in doing so identifies processes that could contribute to efficiency gains. Coordination issues between health service providers are found to be a source of significant potential, as are coordination issues between health service providers and patients. In addition, reforms within the reimbursement system could also create specific incentives that could result in more efficient processes.

Synthesis Working Paper
Health Care Data
Healthcare researchers can derive important findings from routine data such as health insurers' billing data or information in electronic patient records. However, many of these data are of little use to researchers because they are stored in isolated data

silos in a wide range of formats and structures. The "Health Care Data" Synthesis Working Paper draws on results and experience from NRP 74 to deliver two key recommendations to improve the situation: the introduction of a Unique Personal Identifier for each individual's health data and the establishment of a national institution to coordinate access to health data and prepare the data for use by researchers.

Synthesis Working Paper

Building a strong Research Community (EHCL+)

The Emerging Health Care Leaders (EHCL+) initiative was created as part of NRP 74 to give young researchers important practical skills that they will require for a successful career in healthcare research. The "Building a Strong Research Community (EHCL+)" Synthesis Working Paper provides an evaluation of the initiative as it was implemented during the course of NRP 74. It also presents the results of a focus study conducted to investigate ways of establishing a durable integrated research community on the basis of EHCL+. This will bring representatives of healthcare research together with young managers from the healthcare system to systematically ensure a close dialogue between researchers, practitioners and politicians.

The 34 projects in NRP 74

1 Patient experiences help improve health care for migrant women
Thomas Abel (Universität Bern)

2 Participatory methods promote participatory decisions in colorectal cancer screening
Reto Auer (Universität Bern), Nikola Biller-Andorno, Jean-Luc Bulliard, Jacques Cornuz

3 Large regional differences in elective medical interventions in Switzerland
Drahomir Aujesky (Universität Bern), Arnaud Chiolero, Radoslaw Panczak, Nicolas Rodondi, Claudia Scheuter, Maria Wertli

4 Social inequalities in the provision of in-patient healthcare in Switzerland
Lucy Bayer-Oglesby (Fachhochschule Nordwestschweiz)

5 Case management reduces the number of ED visits and promotes patients' quality of life in frequent users
Patrick Bodenmann (Université de Lausanne), Jean-Bernard Daeppen, Judith Griffin, Olivier Hügli

6 Interprofessional quality circles improve medication in nursing homes
Anne Niquille (Université de Lausanne), Olivier Bugnon

7 Routine data from primary care practices serve to improve the healthcare system in Switzerland
Corinne Chmiel (Universität Zürich), Stefan Essig, Dagmar Haller-Hester, Lilli Herzig, Thomas Rosemann, Sven Streit, Andreas Zeller

8 Treating people with acute mental illnesses at home
Luca Crivelli (Scuola universitaria professionale della Svizzera italiana), Emiliano Albanese, Wolfram Kawohl, Rafael Traber

9 Automatic detection of adverse drug events in the geriatric care
Chantal Csajka (Université de Lausanne), Patrick Beeler, Pierre-Olivier Lang, Marie Annick Le Pogam, Christian Lovis

10 Promoting the merging of health data in Switzerland
Bernice Simone Elger (Universität Basel), Thomas Perneger

11 End of life: more quality and less suffering through better planning and coordination?
Steffen Eychmüller (Universität Bern), Matthias Egger, Sven Streit

12 Flat-rate reimbursement helps avoid overtreatment and reduce healthcare costs
Stefan Felder (Universität Basel), Reto Auer, Christian Matthias Ernst

13 The closure of general practices can lead to regional undersupply and more costly consultations
Michael Gerfin (Universität Bern), Wolfram Kägi

14 Antibiotic durations can be reduced without risk
Angela Huttner (Université de Genève), Werner Albrich, Pierre-Yves Bochud, Stephan Jürgen Harbarth, Laurent Kaiser

15 Better care for children with developmental disorders
Oskar Gian Jenni (Universität Zürich), Michael von Rhein

16 Cantonal differences make it difficult to form regional palliative care networks
Brigitte Liebig (Fachhochschule Nordwestschweiz), Klaus Bally, Claudia Gamondi, Elisabeth Zemp Stutz, Maya Zumstein-Shaha

17 An improved dementia diagnosis requires a closer cooperation of health and social actors
Barbara Lucas (Haute école spécialisée de Suisse occidentale), Samia Hurst

18 Interprofessional discharge planning reduces length of hospital stay
Beat Müller (Universität Basel), Sabina De Geest, Alexander Kutz, Philipp Schütz

19 Critical review of the medication list when leaving hospital necessary, but not sufficient
Stefan Neuner-Jehle (Universität Zürich), Stefan Markun, Nicolas Rodondi, Thomas Rosemann, Oliver Senn, Stefan Zechmann

20 Successful integration of the spiritual dimension into chronic pain therapy
Simon Peng-Keller (Universität Zürich), Nikola Biller-Andorno, Alexander Bischoff, Sissel Guttormsen Schär, Michael Rufer, Rebecca Spirig

21 Standardised assessment and reporting system for functioning information supports quality reports and individual rehabilitation
Gerold Stucki (Schweizer Paraplegiker-Forschung), Birgit Prodinger

22 Improved medication for the chronically ill with an electronic decision support system
Sven Streit (Universität Bern), Nicolas Rodondi, Matthias Schwenkglenks

23 Financial incentives only indirectly influence the quality of treatment for diabetes
Thomas Rosemann (Universität Zürich), Corinne Chmiel, Sima Djalali, Oliver Senn

24 Spitex uses its data to optimise client satisfaction and quality of care
Julia Dratva (Zürcher Hochschule für Angewandte Wissenschaften), Sonia Pellegrini, Adrian Spörri-Fahrni

25 Older adults express their choices to guide the long-term care policy
Brigitte Santos-Eggimann (Université de Lausanne)

26 Impact of scientific evidence on regional differences in medical services provision is smaller than expected
Matthias Schwenkglenks (Universität Zürich), Holger Dressel, Klazien Matter-Walstra, Viktor von Wyl

27 Nurse-led care models reduce unplanned hospital admissions
Michael Simon (Universität Basel), Sabina de Geest, Carlo De Pietro, Mario Julien Desmedt, Reto Werner Kressig, Dunja Nicca, Nathalie I. H. Wellens, Andreas Zeller, Franziska Zúñiga

28 Vaccine-sceptical patients and doctors in Switzerland
Philip Eduard Tarr (Universität Basel), Christoph Berger, Claudine Burton-Jeangros, Andreas Zeller

29 Better identification and treatment of psychiatric disorders in primary care
Birgit Watzke (Universität Zürich), Thomas Rosemann, Matthias Schwenkglenks, Markus Wolf

30 Integrated community-based care for home-dwelling older people
Sabina De Geest (Universität Basel), Matthias Briel, Mieke Deschodt, Nicole Probst-Hensch, Matthias Schwenkglenks, Penelope Vounatsou, Andreas Zeller, Franziska Zúñiga

31 Development of caring communities for long-term care at home
Heidi Kaspar (Berner Fachhochschule), Claudia Müller

32 How to improve care coordination for people with chronic conditions in Switzerland?
Joachim Marti (Université de Lausanne), Olivier Bugnon, Clémence Perraudin, Isabelle Peytremann Bridevaux, Joël Wagner

33 Chronically ill people need well-developed primary care, as a simulation model shows
Lukas Schönenberger (Berner Fachhochschule), Carl Rudolf Blankart, Urs Brügger, Sebastian Gurtner

34 A collaborative, patient-centered medication management model to promote home-dwelling older adults' safety at home
Henk Verloo (Haute école spécialisée de Suisse occidentale), Marie Santiago Delefosse, Armin von Gunten, Boris Wernli

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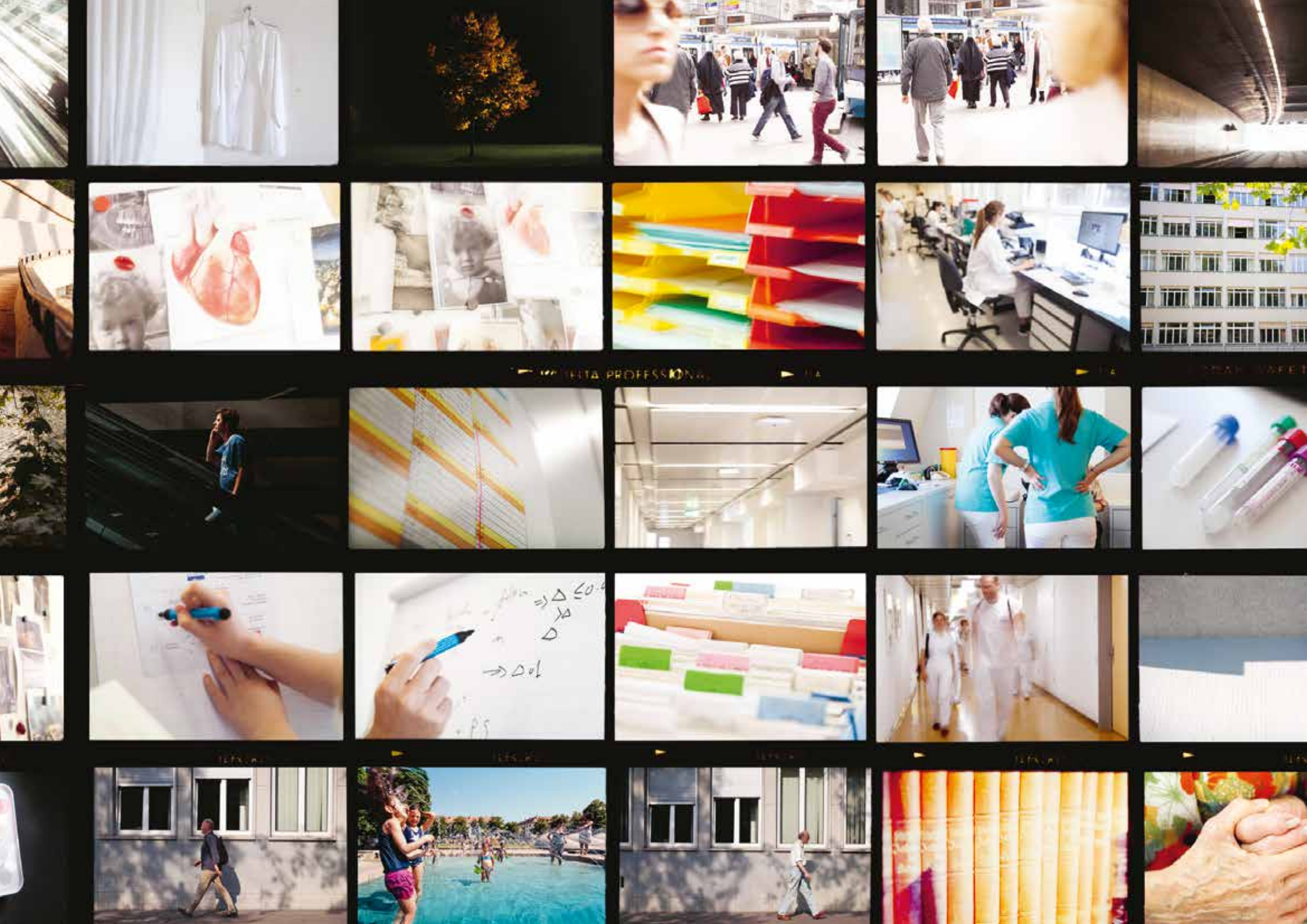
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