ENHANCING THE QUALITY AND SAFETY OF SWISS HEALTHCARE

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A national report commissioned by the Federal Office of Public Health on the quality and safety of healthcare in Switzerland

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Acknowledgements

Preface

The Swiss healthcare system is widely assumed, by both citizens and healthcare professionals, to be of a uniformly high standard. A report on the quality and safety of Swiss healthcare might seem to be an unnecessary exercise. International experience would suggest, though, that unless Swiss healthcare is utterly unlike any other system, there are likely to be substantial variations in outcome, significant levels of error and multiple vulnerabilities that may cause distress, delay and sometimes harm to Swiss patients.

The Federal and Cantonal Governments and many other organisations have established important initiatives over the last 20 years to improve and develop Swiss healthcare. In 2016, the Federal Office presented a new law to the Swiss Parliament proposing an ambitious national programme to improve the quality and safety of healthcare. In 2017, the Scientific Advisory Board recommended that the Federal Office commission a national report on the quality and safety of care in Switzerland. We were commissioned to produce this report. We collated the evidence to assess the quality and safety of Swiss healthcare. We use this analysis as a foundation for recommendations to enhance healthcare for all Swiss people.

Writing a report has no value unless it is embraced and used by the people it serves. This report is the result of collaboration between many people and organisations in Switzerland. We were fortunate in being able to request and receive a total of 28 reports and literature reviews, which provide the foundations for the present report. The full list of supporting reports and contributors is provided in Appendix I. All short reports and reviews are publicly available. We have also drawn on the wider international literature and our own experience in both research and improvement. Appendix II describes the development of the report.

We believe that our collaborative approach has three particular strengths. First, we have been able to draw on a much wider range of expertise and experience than is usual in expert reports. Many different clinical and academic disciplines are represented in the short reports. Second, we can have confidence that the recommendations of the report are broadly supported by the people and organisations involved. Third, this process has brought together a community of people who are passionate about improving healthcare in Switzerland and who together can act on the recommendations for the benefit of all Swiss people.

We believe that this report provides the foundations for a strong programme of quality and safety improvement in Switzerland. We hope that it will be a valuable resource for all those working to provide the best possible healthcare to the people of Switzerland. We encourage readers to gain additional understanding and insight by also reading the supporting reports that are of particular interest to them. We thank all our colleagues for their steadfast support throughout the process of preparing the report. We sought consensus whenever possible but we are solely responsible for the final form and conclusions of the report.

Charles Vincent & Anthony Staines

1 The quality and safety of healthcare worldwide

Health outcomes are improving rapidly in many countries. People are living longer and many previously fatal conditions have become treatable, enabling people to survive and retain a good quality of life. These improvements are due to a combination of new and more effective treatments, improved healthcare delivery and better social and environmental conditions.

Although there have been many advances, influential reports and studies in many countries have drawn attention to deficiencies in the healthcare delivered to citizens. In the United Kingdom, the Berwick report warned that patient safety issues were encountered throughout the NHS (Berwick, 2013). In the United States, the report on 'Crossing the quality chasm' documented large gaps between the care people should receive and the care they actually receive (Institute of Medicine, 2001; McGlynn et al., 2003). The World Health Organization (WHO), the Organisation for Economic Co-operation and Development (OECD) and the World Bank have all observed that such problems are systemic and permeate all healthcare systems, whether public or private (WHO, 2018).

Studies in many countries have found that healthcare frequently falls below expected standards and causes harm to patients. For instance, an Australian study found that adult patients received an average of only 57% of recommended care for a wide range of common conditions (Runciman et al., 2012). Healthcare also causes harm. Studies in many countries, carried out by reviewing medical records, have found that between 8% and 12% of patients admitted to hospital suffer harm, which is sufficiently severe to require at least one additional day in hospital (Schwendimann et al., 2018). Most of these 'adverse events' are minor and do not have long-term consequences, but some are serious and even fatal. There is, in addition, much evidence of care that is simply unnecessary or of very low value (OECD, 2017).

Increasingly, we see explicit acknowledgement of the substantial variations in both use and outcomes of care both within and between countries. Following the influential United States Dartmouth Atlas of Health Care, several European countries have developed their own national atlases of medical practice variation. Spain, England, Germany and the Netherlands have all published national atlases (Peiro & Maynard, 2015). For instance, use of common surgical procedures varies widely between regions. Differences in illness burden, diagnostic practices and patient attitudes about medical intervention explain only a small degree of regional variation in surgery rates (Birkmeyer et al., 2013). In Switzerland, a study of six procedures showed an average variation across cantons of a factor of two. The use of knee arthroscopy in hospitals, for instance, was 3.4 times more common in hospitals making most use of the procedure than in those making least use (Pellegrini et al., 2014). A large European study of 46,539 surgical interventions provides an example of variation in outcomes. Mortality rates varied widely between countries (from 1.2% for Iceland to 21.5% for Latvia). Post-surgical mortality in Poland was six times that in the United Kingdom and Switzerland (Pearse et al., 2012). Studies of variation in many countries suggest that there is a considerable amount of over-treatment, low value and inappropriate care in even the best systems (Peiro & Maynard, 2015).

Vulnerable groups in all countries are, for a variety of reasons, likely to receive a lower standard of healthcare (Kruk et al., 2018). Quality of care is worse for many groups, including the poor, the less educated, adolescents, those with serious mental health problems and those at the edges of health systems, such as people in prison. These vulnerable groups are less able to access healthcare and then often receive treatment of lower quality (Kim et al., 2014; Priester et al., 2016).

1.1 Interventions to improve the quality and safety of care

Compared with a decade ago, we now have a much better understanding of the causes of poor quality and safety, with similar findings emerging in many countries. For instance, studies of process failures, teamwork, interruptions and distractions have identified multiple vulnerabilities in systems of surgical care, general medicine and primary care (Vincent et al., 2004; Manser et al., 2009).

Poor communication, both between professionals and between patients and professionals, is a major contributor to error and harm. Common problems include inaccurate information exchange, poor documentation, unclear discharge instructions and miscommunication due to language differences (Hannawa, 2019). A much more sophisticated understanding of teamwork is emerging in both the operating theatre and the wider healthcare system (Neily et al., 2010; Russ et al., 2012). A number of interventions have been developed to improve communication and teamwork. For instance, the TeamSTEPPS programme identifies and teaches four core competencies (leadership, situation monitoring, mutual support, and communication) which are widely applicable across healthcare (Clancy, 2007; Staines et al., 2016; Hannawa, 2019).

There are still relatively few examples of interventions which have had a demonstrable large-scale impact, but there are some notable exceptions. They include the reduction of bloodstream infections thanks to successful international 'Hand Hygiene' initiatives (Pittet et al., 2000; Pittet et al., 2005), the reduction of central line infections (Pronovost et al., 2006) and the reduction in surgical complications and mortality following the worldwide introduction of the WHO surgical safety checklist (Haynes et al., 2009). Rates of adverse events, such as drug reactions and infections, have fallen in some groups of general medical patients in the United States (Wang et al., 2014) and there is evidence that wrong site surgery has been reduced (Neily, 2018). Quality improvement methods have also been applied nationwide to emergency surgery, showing improvements in the reliability of processes, but this did not translate into significant changes in outcomes (Peden et al., 2019).

The most immediately effective quality and safety improvements have been those with a strong focus on a core clinical issue or a specific clinical process or pathway (Shekelle et al., 2011). Another class of interventions focuses on improving the underlying system supporting staff to work more effectively and improving care across clinical settings (Vincent & Amalberti, 2016). For instance, medication errors have been reduced by standardising formularies and protocols, by including pharmacists in ward rounds and by the introduction of computerised prescribing (Miller et al., 2011; Avery et al., 2012). Errors can also be reduced by improving working

conditions, for instance, by improved interface design or by minimising the interruptions and distractions that greatly increase propensity to error (Vincent, 2010).

Some healthcare processes, such as radiotherapy and blood transfusion, have attained very high levels of safety and reliability. This has been achieved by steady, systematic improvements over decades combining the development of clear standardised processes, the intelligent use of automation and technology underpinned by a wider culture of safety and quality improvement (Murphy et al., 2009). All interventions, of whatever type, rely on basic infrastructure, adequate resources, quality infrastructure, effective leadership and the capacity for organisational change, discussed later in this report (Vincent & Amalberti, 2016).

2 The Swiss approach to healthcare quality

As in many other countries, some of the earliest systematic work on the quality of care has come from the field of infection control. The Swiss Society for Infection Control was founded in 1974, and began to systematically monitor infection rates in the early 1980s. From the very beginning, the society embraced different disciplines and professions. Swissnoso was founded in 1994 to provide guidance in the field of infection control. The first prevalence study of healthcare-associated infections was organised by Swissnoso in 1995 (Sax et al., 2019).

The University Hospital of Basel initiated training in anaesthesia crisis management in the late 1980s, which was later expanded to the training of whole operating theatre teams. In the same year, the Swiss Association for Quality in Healthcare was established, which stimulated early quality developments in hospitals.

Formal certification of Swiss hospitals began in 1995 with the ISO 9001 certification of Klinik Bethanien in Zürich. The Association for Quality Assurance in Surgery was founded in 1995, with the aim of collecting comprehensive data on standards and outcomes. In 1996, a new health insurance act (KVG) came into effect which included an emphasis on ensuring high standards of care (Article 43 paragraph 6 KVG). In the same year, the Swiss Society of Anaesthesia defined quality parameters and introduced a voluntary data registry.

The Department of Anaesthesiology at the University Hospital of Basel first used a critical incident reporting system in 1995 (Staender, 2019). This system became available nationally in 1997 through the leadership of the Swiss Society of Anaesthesiology. In 1997, Geneva University Hospitals established a specific quality of care department, followed in 1998 by the Locarno Hospital La Carità. The Swiss Network for Health Technology Assessment was established in 1998, as a partnership between the Federal Office of Public Health, the cantons, the Swiss Medical Federation and several university hospitals. The External Quality Assistance in Outpatient Medicine Foundation (EQUAM) was established in 1999 to foster quality initiatives in primary care and managed care (Hosek & Bezzola, 2019).

2.1 Developments from the year 2000

The landmark report 'To err is human' by the Institute of Medicine in 1999 argued that almost 100,000 deaths each year in the United States might be due to medical error. A press release at the time from the Federal Office of Social Insurances suggested that, if the United States figures were extrapolated to Switzerland, then between 2000 and 3000 deaths per year in Swiss hospitals might be due to preventable medical errors. The Swiss Government made patient safety a priority theme for Swiss healthcare. The establishment of the Foundation of Patient Safety in 2003, following the recommendations of the Patient Safety Task Force (2001), was a major milestone (Zuellig, 2019). This was followed in 2006 by a series of initiatives including surveys of staff and patients and the development of quality and safety indicators (Busch, 2019). The Critical Incident Reporting & Reacting NETwork (CIRRNET®) was also established in 2006 by the Swiss Patient Safety Foundation and the Swiss Society of

Anaesthesiology. Common problems are identified and alerts released by the Patient Safety Foundation (Frank, 2019).

In 2007, the Commission of the Council of States (Senate) strongly criticised the Government and requested a strategy for quality in healthcare. The 2009 Quality Strategy set out the need for a quality and safety culture, closer integration of inpatient and outpatient services, and informing and empowering of patients. The National Association for the Development of Quality in Hospitals and Clinics (ANQ) was established in 2009, with the role of developing and implementing quality and safety indicators. National programmes to improve quality and safety began in 2012. In 2013, the Federal Office established a scientific board to advise on the national quality and safety strategy.

Public satisfaction with the Swiss health system is very high and has increased over recent years: more than 80% of the population had a rather positive or very positive view of the health system in 2014. However, the proportion of the population assessing the quality of the health system as very good has considerably decreased since 2010, from above 40% to about 23% in 2014 (De Pietro et al., 2015). Swiss citizens are also increasingly aware of the hazards of healthcare. Studies by the Swiss Patient Safety Foundation showed that 11% of Swiss people were able to report a medical error in their care in the last two years. Poor coordination of care, missing test results and medical records, conflicting information from different providers and unnecessary repeat testing were the most frequently reported (Schwappach, 2012).

In 2014, the Confederation suggested the creation of a national coordinating body for quality in healthcare. The proposal was rejected by the majority of stakeholders, who feared a move towards excessive national control over healthcare. In 2019, at the time of writing, the Swiss Parliament is moving towards a consensus on establishing an extra-parliamentary commission and financial support for programmes to improve the quality of healthcare. Table 2.1 gives an overview of the diverse quality and patient safety activities from the year 2000.

2.2 Commentary

In the last 20 years, there have been many important and valuable developments, but there has also been considerable disagreement about who should be responsible for the quality and safety of care in the Swiss system. At various points, ambitious national programmes and centres have been proposed but then blocked because of lack of consensus on the nature of a national coordinating body and a fear of excessive central control. Few initiatives have been directed at understanding or improving the patient experience and Swiss patient organisations do not seem to be prominent in the national strategy. Swiss safety and quality organisations are doing valuable work individually, but it appears to be difficult to establish coordinated national programmes.

Table 2.1 Landmarks in the evolution of quality and safety in Swiss healthcare after 2000

2000	• The Federal Office of Social Insurances issues a press release, following the United States 'To err is human' report, which implied that there are 2000 to 3000 preventable deaths per year due to medical error in Swiss hospitals. • The Federal Office of Social Insurances declares patient safety a priority for Swiss healthcare. • The Federal Department of Home Affairs creates a Task Force on Patient Safety. • FoQual is created, the quality forum for the Chief Quality Officers from the French-speaking and Italian-speaking hospitals.
2001	• The Task Force on Patient Safety recommends the creation of a national centre and the implementation of a national patient safety programme. • SanaCERT Suisse and the Swiss Foundation for Safety in Anaesthesiology are founded.
2003	• The Swiss Patient Safety Foundation (later to become Patient Safety Switzerland) is established.
2004	• The Parliamentary Commission of the National Council proposes that the Federal Government should have overall responsibility for quality of care.
2005	• The Federal Government asserts that quality should remain the responsibility of the providers, under the supervision of the cantons.
2006	• An OECD report on Swiss healthcare describes a lack of governance and poor coordination of quality and safety initiatives in Switzerland. • The Critical Incident Reporting & Reacting Systems Network (CIRRNET) is established. • The first inpatient quality indicators are introduced by the Federal Office of Public Health.
2007	• The Commission of the Council of States (Senate) strongly criticises the Government and requests a strategy for quality in healthcare. • A patient safety congress is organised by Patient Safety Switzerland.
2008	• The Medical Board of Zürich (later to become the Swiss Medical Board) is established.
2009	• The Swiss Confederation Quality Strategy for Healthcare is published and endorsed by the Government. • The National Association for the Development of Quality in Hospitals and Clinics (ANQ) is created.
2011	• Cantons, insurers and the Association of Hospitals sign the first quality contract, which specifies national arrangements for funding and use of quality indicators in the inpatient sector. • A second OECD report on Swiss healthcare states that Switzerland has only limited capacity to benchmark the quality of healthcare services. • The Swiss Medical Board is established incorporating the Zürich Medical Board, cantonal authorities and the Swiss Academy of Medical Sciences. • A second patient safety congress is organised by Patient Safety Switzerland.

2012	• The Government begins to finance national programmes for quality and safety in healthcare. • Billing through diagnostic related groups (DRGs) is introduced. ANQ indicators assess the impact of the new financing system on quality of care. • Swiss Inpatient Quality Indicators (CH-IQI) are published for each acute care hospital. • Two national patient safety programmes are initiated by the Federal Office of Public Health and run by Patient Safety Switzerland. • The Swiss Academy for Quality in Medicine (ASQM) is established by the Swiss Medical Federation (FMH), with a quality charter signed by 72 medical associations.
2013	• A Scientific Advisory Board for Quality and Patient Safety is appointed to the Head of the Federal Office of Public Health. The first report of the Scientific Advisory Board is published.
2014	• The Confederation suggests the creation of a centre for quality in healthcare. The proposal is rejected by the majority of other stakeholders. • The 'Smarter Medicine' campaign begins, associated with the international 'Choosing Wisely' movement, to reduce unnecessary care.
2016	• A national registry of quality in anaesthesiology (A-QUA) is introduced.
2017	• The Government accepts transition financing for continuation of the national quality and safety programmes for 2018–2020. • The second report of the Scientific Advisory Board recommends the commissioning of a report on Swiss healthcare.
2018	• The Federal Office of Public Health commissions a report on the quality and safety of healthcare in Switzerland.
2019	• The Swiss Parliament moves towards consensus on establishing an extra-parliamentary commission and financial support for programmes to improve the quality of healthcare.

3 What is known about the quality and safety of care in Switzerland?

Reliable and accessible information on healthcare processes and outcomes is an essential foundation of high-quality care. Such data is needed to monitor standards of care, assess where improvements might be needed and evaluate the impact on the healthcare system of interventions and changes. Tracking performance over time in a single department or organisation is essential if one wishes to maintain or improve quality in a systematic way.

Organisations and individuals can learn about standards of care by comparing themselves with peer organisations. Outcomes may vary, however, because patients are older or sicker, rather than because the quality of care is different across institutions. Risk adjustment can be used to correct for these differences, but even the most sophisticated approaches may not be sufficient to correct for all relevant differences. Policy-makers and others have also sometimes been tempted to use a single measure, such as in-hospital mortality, as an indicator of overall organisational performance. However, there are many weaknesses to this approach. A range of measures is needed to properly reflect the activities of the unit or organisation.

In this section of the report, we provide a brief overview of the information routinely collected in Switzerland and then address standards of care in different settings. Readers are referred to the literature review (Burnand & Al-Gobari, 2019) and supplementary reports on specific topics for more detail.

3.1 Routinely collected quality and safety information

Information on healthcare may be collected at an organisational, cantonal or national level. To our knowledge, there is no overall description of what each canton collects. Only a small number of national indicators are collected in Switzerland, mostly focused on hospitals and acute care (Burnand & Al-Gobari, 2019; Schneider, 2019). ANQ monitors rates of potentially avoidable readmissions through discharge statistics, as well as falls and decubitus ulcers in prevalence surveys. ANQ also collects data on functional rehabilitation and on mental health symptoms (Busch, 2019).

Patient-reported assessments of quality are of growing importance in many countries (Troillet et al., 2017). ANQ conducts patient experience surveys in many different healthcare settings. Patient-reported outcomes measures (PROMs) are emerging in several healthcare areas, including primary care. Tools are available to measure patients' perceived health status, functional status and health-related quality of life (Busch, 2019).

Swissorthopaedics (the Swiss Society of Orthopaedics and Traumatology) operates the SIRIS register as a tool for measuring quality in all types of medical implant. SIRIS serves as an early warning system for implant failure, an indicator of complications in surgical interventions, a benchmark for comparisons at industry and hospital level, and a database for long-term outcomes and survival analyses (Genoni, 2019).

Surgical site infections are monitored by Swissnoso using surveillance and point prevalence surveys, but reporting is voluntary and not all institutions participate. The results of

participating hospitals, stratified by type of surgery and other risk factors, are made available on the ANQ website each year (Sax et al., 2019). A valuable feature of this programme is that the quality of the surveillance itself is also assessed in each hospital and published as a score alongside the results. A recent assessment of the programme in 147 Swiss hospitals showed that, although there is a well-defined surveillance methodology, there is also wide variation in its actual implementation. Improving the quality of chart review and the accuracy of data collection are the main priorities for improvement (Kuster et al., 2017).

3.2 Hospital-based care

Hospital care covers a huge range of specialties and activities. We focus here on surgery, anaesthesia and the care of older people in general medicine, which are major priorities for all hospitals and cantons.

3.2.1 Surgery

From the limited information available, Swiss outcomes from surgery seem similar to those of other advanced healthcare systems. In a large study of outcomes after major surgery (Pearse et al., 2012), rates of mortality in Switzerland were above the European average and similar to those of the United Kingdom. Standardised mortality information in Switzerland is available for certain forms of surgery (such as colorectal surgery). The Association for Quality Assurance in Surgery has a database of 1.5 million cases, which it uses to create common statistics that members can use for comparison and quality assurance purposes (www.aqc.ch). There is very little publicly available national data.

Swissnoso recently reported surgical site infection (SSI) data on over 180,000 operations over a four-year period. Between 2011 and 2015, cumulative SSI rates within hospitals varied from 0.9% for knee arthroplasty to 14.4% for colon surgery. Swissnoso has also pioneered long-term follow-up and high rates of SSIs have been detected post discharge for some types of surgery. Clinicians publishing this data have commented that, while surveillance is critical, SSI rates are unlikely to decrease without structured and mandatory quality improvement efforts (Troillet et al., 2017; Sax et al., 2019).

There are a small number of studies assessing concordance of surgical practice with international guidelines (Burnand & Al-Gobari, 2019). For instance, a recent study of prostate cancer treatment in Canton Ticino showed that treatment modalities seem to accord with international guidelines and that Swiss results are comparable with the findings of the few international studies available. Evidence-based guidelines were followed in about two-thirds of cases, but active surveillance was performed in fewer than half (Ortelli et al., 2018).

3.2.2 Anaesthesia

Anaesthesia is considered to be very safe for reasonably healthy patients undergoing elective procedures. The mortality risk from complications and adverse events of anaesthesia appears to be at approximately 1:100,000 cases today in Europe (Staender, 2019). Swiss anaesthetists are active in developing indicators of outcomes in a European context. Anaesthesia in

Switzerland appears to be very safe and equivalent to other advanced systems, but it is difficult to be sure of the actual level of complications, as they are not routinely monitored (Staender, 2019). In an analysis of closed claims that occurred between 1987 and 2011, the review committee assessed the quality of care to be substandard in 55% of cases and liability was accepted in 46% of all claims. The incidence of claims, as well as associated mortality, was of similar magnitude as in the United Kingdom (Staender et al., 2011), but claims are a very poor guide to the overall quality of care. Critical incident reporting is widely used by Swiss anaesthetists to monitor safety and respond to any threats to safety.

3.2.3 Care of older people in hospital

Older adults have a greatly increased risk of both acute illness and chronic conditions, such as diabetes, hypertension and dementia (Rechel et al., 2013). Ageing is also associated with an increased likelihood of prolonged hospital stay, discharge to an increased care level, rehabilitation, nursing home admission and hospital readmission (Buurman et al., 2011).

A small number of studies have assessed the quality of general medical care of older people in Swiss hospitals (Burnand & Al-Gobari, 2019). For instance, the care of 1260 patients with acute coronary syndrome was assessed against guidelines in four medical centres. Prescription of recommended preventive drugs was very high (mostly above 90%), although there was scope for improvement in prescription of beta-blockers (Auer et al., 2014). Between 2001 and 2012, adherence to guidelines steadily increased with a corresponding improvement in outcomes (Schoenenberger et al., 2016).

Comprehensive geriatric assessment ensures the early detection and accurate management of geriatric syndromes (Deschodt, 2019). In this approach, staff from a number of disciplines will fully assess a frail older person's medical, psychological and functional capability and develop a coordinated treatment plan and long-term follow-up. Some hospitals internationally have established specialist acute geriatric units, designed specifically to prevent functional decline and related complications after admission to hospital for an acute event (Baztan et al., 2009; Deschodt, 2019). There is little data available about the facilities available in Swiss hospitals, approaches to assessment or the outcomes in terms of function and quality of life.

3.2.4 Harm to patients in hospital

A study of care in a single Swiss hospital found that 12.3% of patients experienced harm, almost half of which could have been prevented with a good standard of care (Halfon et al., 2017). Over 60% of these events did not have any serious consequences, but almost a quarter led to some serious impairment over time. The findings of this study are in line with those of studies of harm in other countries. In general, there is no reason to believe that patient harm is more or less frequent in Switzerland than in other advanced healthcare systems (Zuellig, 2019).

In Switzerland, some data on harm is reported to hospitals, liability insurers, cantonal physicians and patient protection organisations. However, the data collection is not systematic. Prevalence studies of falls and pressure ulcers, two common and important types of harm in

hospital, are conducted by ANQ. Among adults, the total decubitus ulcer rate has remained relatively stable at around 4% for several years. The fall rate, which was 3.8% for older adults in 2017, has also remained stable for many years (Zuellig, 2019).

3.2.5 Hospital-associated infections

Hospital-associated infections (HAIs) may be detected in general studies of harm, but targeted surveys give rates that are more accurate. In 2017, Swissnoso carried out a one-day point-prevalence study in 96 hospitals. The overall prevalence of patients suffering from at least one HAI in Swiss hospitals was 5.9% (against 6% in the last European survey). In another study, the prevalence of healthcare-associated infections in two tertiary and one secondary care hospital was 5.6%, close to the rates reported in other European countries (Metsini et al., 2018). A report of viral hospital-associated infections in one infectious disease ward and three general paediatric wards in Finland and Switzerland indicated a frequency of 12%, with 2% of the patients developing an infection in the hospital, most often gastroenteritis, and 10% developing an infection within 72 hours of discharge. Clostridium difficile infections are relatively rare in Swiss hospitals, with an incidence of 2.3/10,000 patient days being found in one tertiary care hospital. In the majority of cases, the transmission was from another patient and caused by inadequate infection control procedures (Kohler et al., 2013).

3.3 Primary care

There is currently very little routine data collected on the quality of primary care in Switzerland (Burnand & Al-Gobari, 2019). Some information on facilities is available, but outcome data is almost non-existent (Chiolero & Rodondi, 2019). An ambitious system of monitoring has been proposed, but putting it into practice would be a major challenge because of variable data quality and the costs of collecting and analysing the information (Ebert et al., 2017). There is also potential to derive quality indicators from insurance claims (Blozik et al., 2018). It would be feasible, for instance, to monitor the proportion of patients with diabetes having regular monitoring of their lipid levels.

A number of studies have been conducted on the quality of Swiss primary care services. For instance, patients receiving long-term treatment for coronary heart disease received over 80% of four recommended assessments and drug treatments aimed at preventing future decline (Scherz et al., 2016). For some conditions, care does not appear to accord with clinical guidelines. In four university primary care settings, only 20% of patients with hypertension, 41% with dyslipidaemia and 36% with diabetes mellitus were receiving the full range of treatments to keep their condition under control (Weiler et al., 2014). While there is often good justification for departing from clinical guidelines, these figures suggest that many Swiss patients are not receiving optimal treatment.

The Swiss Society of Endocrinology and Diabetology reported good overall disease management for diabetes, but with scope for improvement in some areas, such as nutrition counselling. A more detailed analysis in one canton indicated that routine tests, such as blood pressure and lipid levels, were performed in over 90% of patients, but that physical activity and

dietary recommendations were missing for many patients (Peytremann-Bridevaux et al., 2013). Only 70% of participants underwent an eye examination by an ophthalmologist during the previous year, although almost all participants were aware that diabetes could damage their sight (Konstantinidis et al., 2017).

There is even less information about preventative care, but that which is available suggests considerable variability in the care given to similar patients. For instance, in a random sample of 1002 patients aged between 50 and 80 from all Swiss university primary care settings, 83% of appropriate patients received recommended care for cardiovascular risk factors, but only 35% received recommended care for the early diagnosis of colon cancer (Collet et al., 2011). Moreover, despite universal healthcare coverage, forced migrants receive less preventive primary care than Swiss patients (Martin et al., 2014).

Quality circles of primary care health professionals meet regularly in small groups on a voluntary basis to reflect on and improve their practice (Rohrbasser et al., 2018). In some regions, they share data and indicators (such as prescribing patterns and costs), and carry out local benchmarking and peer review. In Switzerland, around 80% of primary care physicians are involved in quality circles (Chiolero & Rodondi, 2019). There is no well-defined and sustained quality improvement strategy for primary care at the national level, although there are a number of local and cantonal initiatives.

3.4 Mental health

Psychiatry and psychotherapy are jointly the second most common discipline in Switzerland after general medicine. However, the facilities and professionals are not evenly distributed. Smaller cantons buy specific bed space in inpatient facilities run by larger cantons remote from the community. This means that by the standards of modern community psychiatric care, large areas in Switzerland are not well provided with local psychiatric and psychotherapeutic services (Ihde-Scholl & Rössler, 2019).

Resources appear to be focused on inpatient care and on services provided by doctors and psychotherapists on an outpatient basis. The number of emergency detentions in Switzerland is high. Although there are large differences from region to region, an average of one out of five inpatients is hospitalised on an involuntary basis (Schuler et al., 2018; Hotzy et al., 2019).

Psychiatry, psychology and psychotherapy ideally focus on prevention and promoting well-being, but the arrangement of services does not appear to support these ambitions (Ihde-Scholl, 2019). Comparatively little attention is given to services for people with chronic mental health problems in the community or to crisis services which might prevent admission to hospital. There is little support in the community for young people with emerging mental health problems. Vulnerable groups, such as homeless people and refugees, are not well supported unless their symptoms become so severe as to require admission to hospital.

There appear to be very little data indeed on the quality of mental health services in Switzerland. ANQ publishes data on the symptoms of psychiatric patients at admission and

discharge from inpatient units, but there is no assessment of whether treatment has been effective. While it is important to know the symptom burden for patients, it is very hard to determine the quality of care provided from this information alone.

As in many countries, the physical care of people with mental health problems is of great concern. A review of international studies found that the life expectancy of people with serious mental problems is on average 10 years shorter than people without such problems (Walker et al., 2015). This is partly because many people with mental health problems commit suicide. However, there is also evidence that patients with physical illnesses (such as cardiovascular disease and cancer) who also have mental health problems have a significantly worse long-term outcome than those with physical illness alone. The reasons for this are complex, but poor integration of healthcare services may be one important factor (Ihde-Scholl & Rössler, 2019).

3.5 Nursing homes

The ultimate goal of nursing home care is to maintain a good quality of life for the people who live there while also keeping them safe. The care of patients in nursing homes is often complex due to multimorbidity, polypharmacy, reduced mobility and the behavioural and psychological symptoms of dementia. Effective medical treatment is obviously critical, but maintaining autonomy, dignity and a sense of overall well-being is equally important (OECD, 2013; Zúñiga, 2019a).

There are no routinely collected national indicators for nursing home care. From the information available, Swiss nursing homes have comparable standards to those reported internationally, but there is considerable variation among homes. For instance, the rate of pressure ulcers varies from zero to 19.6% of residents, with highly variable attention to preventative measures (Courvoisier et al., 2018) and considerable scope for improvements in pain control and polypharmacy in some nursing homes (Zúñiga, 2019a). In 2018, the Infection Prevention and Control Unit of Canton Vaud carried out a feasibility study in eight nursing homes, finding that 4.4% of the 562 residents had acquired an infection (FOPH, 2019).

Little is known about the experience of residents of nursing homes. In one national study of 51 nursing homes, 71% of residents interviewed rated their overall quality of life as good. Residents reported that their privacy and dignity were respected, but they did not feel that they were treated as individuals (Sommerhalder, 2015). Only 33% said that care workers showed interest in their lives, leading to a general lack of trusting relationships and meaningful conversations between staff and residents. Care workers in Swiss nursing homes report rationing of care, especially in the areas of social activities, emotional support and rehabilitation. In consequence, many residents suffer from a lack of personal attention from care workers who themselves work under stress and time pressure (Zúñiga et al., 2015; Zúñiga, 2019a).

Several national programmes address nursing home safety and quality issues. For example, the National Dementia Strategy promotes the development of healthcare services, care coordination and interprofessional collaboration. In addition to increasing dementia-relevant

knowledge and skills, participant organisations support informal caregivers and promote new models of care and data monitoring. The National Strategy for Palliative Care fosters quality of care at the end of life, including implementation of advanced care planning, taking into account residents' values and preferences (Zúñiga, 2019a).

3.6 Home care

An ageing population and a growing number of people with one or more chronic conditions mean that more and more care is being delivered in the home. Internationally 'Hospital at home' services have increased rapidly in the last 10 years and are projected to continue to rise rapidly (Gershon et al., 2013). Patients and carers may be using complex medical technologies that were formerly used only by nurses and doctors.

Maintaining quality and safety of care for frail older people at home has its specific challenges: informal carers often carry the main burden of care in an environment not primarily built for healthcare provision (Lang et al., 2006; Zúñiga, 2019b). Formal care workers spend only a limited time in clients' homes, doing assessments, providing care and consulting the clients and their caregivers. Health professionals have little direct influence in the home between their visits. However, a proactive approach and rapid response to emerging problems can have a very marked impact on the patient's quality of life and use of services. In Geneva, an integrated care model with a multidisciplinary geriatric home visit team, which regularly exchanges information with the home care services, has reduced unnecessary hospitalisations and emergency room visits (Di Pollina et al., 2017).

Drug-related hazards are among the most frequent patient safety risks in home care. Some of the main problems are medication discrepancies based on inconsistent information sources, and medication preparation and dispensing errors, for example inappropriate splitting of tablets. International studies suggest a high level of adverse drug events in home care patients, with over 40% receiving potentially inappropriate medication (Meyer-Massetti et al., 2018). There is little Swiss data, but, equally, no reason to think that the pattern would be very different (Zúñiga, 2019b).

In Switzerland, a quarter of respondents aged over 65 and living at home reported falling at least once in the previous 12 months. Other typical adverse events in the home include wounds, infections and problems with medical devices. Potentially inappropriate medications, medication errors and adverse reactions to drugs are common (Zúñiga, 2019b).

There are no national standards for home care in Switzerland and the standards that do exist vary considerably across cantons (Zúñiga, 2019b). Moreover, there are few evidence-based international guidelines that might be employed (Harrison et al., 2013; Czakert et al., 2018). In 2008, a set of quality indicators was developed for the home care setting, including such items as falls, medication review, skin ulcers and caregiver distress (Burla et al., 2010). However, to date, no cantonal or federal agencies appear to have collected such data or publicly reported quality of care indicators.

3.7 Medication safety

The Swiss Patient Safety Foundation has provided a comprehensive overview of the available information on medication provision and medication safety in Switzerland (Fishman, 2018). Its review of empirical research showed that medication safety is an urgent area of concern in the Swiss healthcare system. Adverse drug events and medication errors are common and polypharmacy and its attendant risks are widespread (Dörr, & Küng, 2019). More than 27% of patients have an adverse drug reaction during their hospital stay and 8%–15% of patients overall have experienced an adverse drug event of some kind (Fishman et al., 2018). International studies suggest that 3.5% of hospital emergency admissions in Europe are caused by adverse drug events (Bouvy et al., 2015).

Polypharmacy, defined as taking five or more medications, is common among older people and potentially a marker of unnecessary or inappropriate medications. In a recent European study, rates of polypharmacy ranged from 26% to 40%. Switzerland was among the countries with the lowest overall prevalence, but this still means that a quarter of older Swiss people are taking potentially inappropriate medication (Midao et al., 2018). In a recent study using data from four health insurers, 22.5% of Swiss people aged over 65 were receiving potentially inappropriate medication, which was associated with a higher risk of emergency admissions to hospital (Reich et al., 2014). Contraindicated or potentially contraindicated drug–drug interactions affect over one patient in a hundred in ambulatory care in Switzerland (Bucher et al., 2016).

Clinical pharmacists have recommended the introduction of systematic medication reconciliation on hospital admission across Switzerland. However, this is currently standard practice in only one Swiss hospital (Muff et al., 2019). Progress has been made on the introduction of other measures to improve medication safety, such as computerised prescribing systems and standardised medication processes (Ceschi, 2019). Pharmacovigilance has been strengthened with the increased use of online reporting, international cooperation and harmonisation of systems. Swissmedic has also established a working group with patient and consumer organisations as a platform for the exchange of information (Dörr, & Küng, 2019).

The 'Smarter Medicine' campaign, launched in some regions of Switzerland, aims to encourage activities and interventions to optimise drug treatment, avoid unnecessary medical tests, treatments and procedures, such as unnecessary drug treatments. For example, one hospital network in southern Switzerland has introduced a system of continuous monitoring of new prescriptions; the focus has been placed initially on proton pump inhibitors and benzodiazepines, with very encouraging results, and should now expand to include other medications (Ceschi, 2019).

Table 3.1 International comparisons: illustrative findings

Clinical context	Scope of study	Findings
Major surgery (Pearse et al., 2013)	Cohort study of adult non-cardiac surgery in 498 hospitals in 28 European countries with 60-day follow-up.	Crude mortality rates varied widely among countries (from 1.2% to 21.5%). Switzerland had a low hospital mortality rate, the 9th best of the 28 countries for adjusted mortality.
Healthcare-associated infections (Metsini et al., 2018)	Prevalence survey of healthcare-associated infections in three large Swiss medical centres.	Healthcare-associated infections were found in 5.6% of patients, similar to the 5.9% European average.
Problems experienced in primary care (Macinko et al., 2015)	Survey of 20,000 adult patients in 11 countries assessing various aspects of primary care such as access, coordination of care and communication.	The average number of patient-reported primary care problems was 1.8 in Switzerland, lower than the average of 2.1.
Primary care (Riordan et al., 2018)	Survey of 532 older adults living in the community.	The prevalence of potentially inappropriate prescribing was 17% in Switzerland, 13% in the Netherlands and 9% in Ireland. Prescribing omissions were 25% in Switzerland and the Netherlands and 14% in Ireland.
Polypharmacy in older adults (Survey of Health, Ageing, and Retirement in Europe) (Midao et al., 2018)	Data on health, socio-economic status and social and family networks of about 140,000 individuals aged 50 or older, covering 27 European countries.	On average, 32.1% of older adults in Europe take five or more medications per day. The rate of polypharmacy ranged from 26% to 40%. Switzerland was among the countries with the lowest prevalence (26%).
Safety climate and perceptions of quality in Swiss hospitals (Ausserhofer et al., 2013)	Survey of 33,659 nurses in 488 hospitals in 12 European countries, of whom 1593 nurses participated in 120 units in 34 Swiss hospitals.	A fifth (20%) of Swiss nurses reported their ward to have poor or fair quality of care (international median 23%), whereas 4% gave a poor or failing ward safety grade (international median 6%).
Nursing tasks left undone in hospital (Ausserhofer et al., 2014)	Survey of 33,659 nurses in 488 hospitals across 12 European countries, of whom 1593 nurses participated in 120 units in 34 Swiss hospitals.	The most frequently missed nursing activities were 'Comforting/talking with patients' (53%), 'Developing or updating care plans' (42%) and 'Educating patients and families' (41%). Swiss standards were above average and similar to those of the Netherlands and Sweden.

3.8 Commentary

The most striking finding from this brief overview is simply that very little is known about the standards of healthcare in Switzerland. There are very few national indicators compared with other European countries and systems of monitoring standards of care either within organisations or across regions seem to be minimal. The OECD stated some years ago that the assessment of quality of care across the system was simply not sufficient to monitor standards or to empower patients, insurers and the Government to make informed choices between providers and settings (OECD, 2011). Both the availability of information and the mechanisms for quality assurance have been strongly criticised as fragmented and insufficient, especially in the field of ambulatory care (De Pietro et al., 2015). A comprehensive national effort is needed to improve data on the quality and safety of care across the whole system.

From the information available (Table 3.1), the overall standard of care is generally equivalent to other advanced healthcare systems, albeit considerably more expensive. However, these overall standards are likely to mask considerable variation in standards within Switzerland and there is certainly worrying evidence of problems in patient care (Box 3.1). As in many countries, the care of frail older people and those with mental health problems is a major concern. The study of harm in a single hospital suggests rates comparable to other European countries. It is surprising that, unlike many other countries, Switzerland has not attempted to establish levels of harm across the healthcare system.

Medication safety appears to be an urgent area of concern in the Swiss healthcare system. Studies suggest high rates of adverse drug events and inappropriate prescribing across many settings, but there is very little routine data collection, particularly in ambulatory care. No comprehensive national strategy explicitly dedicated to medication safety exists in Switzerland, and healthcare regulations differ widely among the different cantons.

There are some well-developed and effective national monitoring systems. For instance, the Swissnoso surveys of surgical site infections, part of the suite of ANQ national indicators, provide an excellent example of rigorous, systematic data collection of key quality and safety indicators and an impressive commitment to transparency and public reporting (Troillet et al., 2017; Kuster et al., 2017). This approach provides a model for the development and publication of a full suite of meaningful quality and safety indicators across the Swiss healthcare system.

Box 3.1 Quality and safety in Swiss healthcare: a few troubling facts

In a recent study using data from four health insurers, 22.5% of Swiss people aged over 65 were receiving potentially inappropriate medication, which was associated with a higher risk of emergency admissions to hospital.

Between 8%and 15% of patients are victim of an adverse drug event during their hospital stay.

A study in one Swiss hospital suggested that 12.3% of patients come to some harm during their stay. Most of this harm was minor but some was serious and even fatal. Almost half of the harm could have been prevented with good standards of care. Findings from this study and from international studies imply that approximately 100,000 Swiss hospital patients are harmed by their care each year.

Professional associations recommend the introduction of systematic medication reconciliation at the time of hospital admission. However, this is currently standard practice in only one Swiss hospital.

Among hospitalised adults, the total pressure ulcer rate is 4% and the fall rate is 3.8%.

In the last national 'Hand Hygiene' campaign, the assessment revealed that hospital staff adhered to hand hygiene guidelines on only 53% of occasions.

A national study in 163 nursing homes found that 1.7% of residents had acquired pressure ulcers during their stay, 2.0% of residents had fallen and been injured, and 5.1% had contracted urinary tract infections over the previous 30 days. About 10% of care workers had witnessed elder abuse more than monthly in the form of verbal or emotional abuse and neglect by staff.

Implementation of error disclosure policies by Swiss hospitals has been slow. In 2011, a cross-sectional survey of Swiss hospitals found that 38% (78/205) had no plans to implement a policy supporting staff to openly discuss errors with patients.

A survey of Swiss anaesthesiologists in 2012/2013, examining the emotional impact of medical errors, found that only 10% of anaesthesiologists reported that their hospitals gave them adequate support in coping with the stress associated with medical errors and few had received training on communicating errors to patients.

(These examples are all taken from the short reports listed in Appendix I.)

4 Interventions to improve quality and safety in Switzerland

Health professionals in Switzerland work in many ways to improve care for their patients. We cannot capture all this activity in a single report. Instead, we describe recent national initiatives and selected published improvement projects to illustrate the work that has been carried out and show the potential for much wider innovation and improvement.

4.1 National quality and safety initiatives

Patient Safety Switzerland has been conducting national programmes of patient safety improvement since 2012. The 'Safe Surgery' initiative was an integral component of the national quality strategy. This initiative incorporated a collaborative pilot programme in 10 hospitals to implement the WHO surgical safety checklist and improve safety climate and teamwork. The core elements were four cross-institutional workshops and in-house activities such as adapting the checklist and training staff (Mascherek et al., 2013; Genoni, 2019). The programme showed an improvement in knowledge and use of the checklist (Mascherek et al., 2017).

The second programme (2014–2017) piloted medication reconciliation in acute care hospitals. Medication reconciliation is the systematic preparation of a comprehensive list of the current medication of a patient and the consistent use of this list by all involved healthcare providers as well as patients and their caregivers. This method has been shown to improve communication at treatment interfaces and to reduce medication errors and adverse drug events (Kwan et al., 2013). Implementation was achieved in a number of hospitals, and valuable training materials were produced, but it was not possible to assess the clinical impact.

The third national pilot programme, 'Safety in Bladder Catheters', was carried out jointly by Patient Safety Switzerland and Swissnoso in 2015–2018. The aim of the programme was to reduce the use of urinary bladder catheters and thereby reduce the incidence of catheter-associated urinary tract infections, one of the most common sources of nosocomial infections. The seven pilot hospitals saw a significant reduction in the use of catheters, more frequent assessment of the need for catheterisation and fewer non-infectious complications. Urinary tract infections were already at a low level and did not reduce further (Niederhauser et al., 2018; Sax, 2019). The fourth programme, currently underway, addresses medication safety in nursing homes. In June 2019, Patient Safety Switzerland announced that the next national programme will be on safe surgery and called 'Com-Check'.

These programmes have raised awareness of quality and safety improvement and made important contributions to specific clinical objectives. Demonstrating clinical impact has been more difficult. There have also been many challenges, which can now provide important lessons for future regional or national quality and safety initiatives in Switzerland. For instance, senior leaders in the hospitals did not fully appreciate their role in the programmes or in improving patient quality and safety more generally. Very few clinical staff had had any training in quality and safety improvement, meaning that basic training had to be provided before a programme could start (Kobler et al., 2013).

4.2 Regional and local initiatives

Most improvement activity is not reported in published papers, although this does not necessarily diminish its value or importance to patients and staff (Schneider, 2019). For example, the Swiss Peer Review Alliance has been established to provide a single national interprofessional peer review procedure in acute care (Bosshard et al., 2019; Swiss Nurses Association, 2019). Quality circles, in which groups of healthcare professionals meet to reflect on and improve practice, are well established in primary care in Switzerland (Rohrbasser et al., 2018; Chiolero & Rodondi, 2019).

Published work tends to represent the more mature and better-evaluated programmes and can give an indication of wider quality and safety activity. Interventions to improve the safety and quality of care may seek to improve clinical outcomes, patient experience, efficiency, access, equity or other objectives. To illustrate Swiss improvement studies, we briefly summarise the findings of three topics considered in depth in the accompanying literature review (Manser et al., 2019).

4.2.1 Interventions to improve the safety of the medication process

Medication safety has been an international priority for many years and a number of studies have examined medication-related adverse events in Swiss healthcare (Huckels-Baumgart & Manser, 2014). The review identified seven studies aiming to improve safety at various stages of the medication process. Most consisted of one narrowly focused intervention, such as standardising the approach to taking a medication history or specific improvements to workplace design (Manser et al., 2019). Pagnamenta and colleagues (2012) implemented a more complex 24-month intervention in the intensive care setting that significantly reduced medication errors. Their intervention combined several procedural and equipment-oriented components, such as introducing a basic electronic prescription and standardising labelling of continuously infused medications. In a recent paper, Giannini and colleagues (2019) found that an enhanced, pharmacist-led medication history improved medicines reconciliation at the point of admission.

In another example of a complex and sustained intervention, the Hospital Federation of Vaud launched a 'Breakthrough Collaborative' to reduce adverse drug events. A series of interventions (such as identification of high-risk medication and improved checking procedures) was implemented over 18 months. All hospitals monitored discrepancies between drugs prescribed and those prepared for administration, as well as the occurrence of adverse drug events. Drug discrepancies and adverse events reduced by half in hospitals which sustained the programme for over two years. Factors contributing to success included the status of the project within the organisation, executive support and sustained attention to measurement (Staines et al., 2015).

4.2.2 Checklists for surgical procedures and anaesthesia

The WHO surgical safety checklist aims to improve the checking of safety-critical information before, during and after surgical procedures and interventional diagnostics (Vats et al., 2010). During their observations in Swiss hospitals, Cullati and colleagues found high use of the checklist but variable compliance with the final sign-out procedure (Cullati et al., 2013). Mascherek and colleagues found a significant increase in the self-reported frequency of use of the checklist in a national programme as well as improved knowledge about and satisfaction with checklist use (Mascherek et al., 2017). Only one Swiss study found an effect on patient outcome measures with a significant reduction in reoperation rates due to surgical site infections (Lubbeke et al., 2013). All other outcome measures showed no significant change.

Another two studies assessed a pre-induction checklist for the anaesthesia team. Tscholl and colleagues (2015) found no effect on clinical performance but that use of a checklist improved knowledge of safety-critical information and perceptions of teamwork. Video-based education on teamwork also increased protocol adherence focusing on the performance of safety-critical tasks (Kandler et al., 2016).

4.2.3 Simulation-based team training

Switzerland was one of the first countries in Europe to develop simulation-based team training. The Department of Anaesthesiology at the University Hospital of Basel introduced patient simulators for research and training purposes in 1994. Several prominent research groups studying team performance are based in Switzerland and have contributed significantly to the literature on team training in these settings (Seelandt et al., 2014).

The review identified only three studies evaluating team training interventions with very different aims for improvement (Manser et al., 2019). All three studies made use of simulation technology, but none assessed the impact on actual team performance or clinical outcomes. All members of obstetric teams in a large hospital were trained, but only self-report data was used to evaluate the impact rather than more objective indicators of team performance and patient safety (Haller et al., 2008). Zimmermann and colleagues found positive training effects on both technical and non-technical aspects of performance, but again used self-reports (Zimmerman et al., 2015). A small third study found a positive effect on surgical trainees' technical performance on specific tasks (Rosenthal, 2013). Very few publications evaluated other team training formats such as the internationally widely used approach TeamSTEPPS (Weld et al., 2015; Staines et al., 2019).

4.2.4 Economic evaluation of programmes

Safety and quality interventions primarily aim to improve patient care and the working lives of staff. All interventions, however, carry a cost in terms of staff time and often require additional resources. At a local level, healthcare managers may be reluctant to pay for these initiatives, even if there is evidence of effectiveness, because of financial targets or other constraints. Financial incentives may even discourage quality of care, as when insurers or governments

reimburse procedures required because of previous avoidable complications (Wasserfallen, 2019).

Surprisingly, data about the economic aspects of quality and safety systems and their impact on healthcare is scarce, particularly in Switzerland. There are, however, a small number of examples of quality improvement programmes which have included an economic evaluation. The 'Enhanced Recovery After Surgery' (ERAS) initiative was launched in the late 1990s. ERAS aims at optimising patient preparation before surgery, decreasing surgical and anaesthetic trauma during surgery and optimising post-operative recovery through a combination of 20 care process measures (Ljungqvist et al., 2017). The initial introduction of ERAS led to increased costs of CHF 1200 per patient in one Swiss tertiary hospital. However, this was offset by a concurrent saving of CHF 1981 per patient, mainly through a decrease of nearly 50% in length of stay after abdominal surgery and even larger savings after thoracic surgery (Wasserfallen, 2019).

Surgical teams are receptive to ERAS because the programme aims to improve patient care rather than reduce costs. However, the economic evaluation gives additional power to ERAS and justifies its introduction across the healthcare system. Economic evaluation cannot be applied to all improvement activities, but there is a strong case for including economic evaluation alongside clinical evaluation in any major regional or national programme (Wasserfallen, 2019).

4.3 Support for patients, caregivers and staff after harmful events

Many patients experience errors during their treatment, whether they realise it or not, and some are harmed by healthcare. The harm may be minor, involving only inconvenience or discomfort, but it can also involve serious disability or death. Almost all bad outcomes will have some psychological consequences for both patients and staff, ranging from minor worry and distress through to depression and even despair. These experiences tend not to be fully appreciated, and yet understanding the impact of such injuries is a prerequisite for providing useful and effective help (Vincent, 2010).

4.3.1 Open disclosure after harmful events

In many countries, the open disclosure of errors to patients is now widely seen as an ethical, professional and legal duty and one that is essential to re-establishing trust between patients and staff after an incident. While the open disclosure process can vary, it typically includes an acknowledgement of the error or harm, a factual explanation of what happened, an expression of regret or an apology, an offer of practical and emotional support, and an explanation of the steps being taken to manage the incident and prevent recurrence. Open disclosure, when carried out fairly and respectfully, is thought to potentially have a number of positive benefits, including helping the recovery of patients and caregivers, restoring trust in healthcare professionals and potentially, where financial support is not essential, reducing the need for redress (McLennan, 2019).

Patient Safety Switzerland has developed a range of educational materials and training courses to guide the communication of errors to patients. These conversations are emotionally demanding and require an empathic approach, skilled communication and a deep understanding of the open disclosure process (Hannawa, 2017). A core of staff in any healthcare organisation will need specialist training so that they can support colleagues and caregivers and facilitate the disclosure process (Hannawa, 2019; McLennan, 2019).

The implementation of error disclosure policies by Swiss hospitals has been slow to evolve (Staender, 2019). In 2011, fewer than half of hospitals had implemented a standard and over a third had no plans to implement one (McLennan et al., 2013). Many hospitals refer patients and caregivers to complaints management and legal departments at a very early stage, making a positive resolution much more difficult to achieve (McLennan, 2019).

Legal fears and the formal requirements of insurance companies have been identified as two of the most pervasive barriers to reporting and responding to medical errors. Although the focus on the law is often misguided, studies in Switzerland have highlighted some potentially important legal barriers to supporting victims (McLennan et al., 2015a). Most liability insurance companies in Switzerland appear to discourage communication with harmed patients after an error and prevent any communication if a claim is made (McLennan, 2019). This stance is a major barrier to providing support to patients and caregivers after a medical error.

4.3.2 Support for staff after errors and harmful events

Staff may suffer a variety of consequences when they are personally involved in care that harms a patient (Wu, 2000). Staff involved in major errors can experience burnout, difficulty sleeping, depression, flashbacks and self-criticism, harming not only their health but also threatening their ability to deliver safe, compassionate care (McLennan et al., 2015b).

Patient Safety Switzerland was the first organisation to systematically examine the issue of 'second victims' in Europe (Von Laue et al., 2011). They provided a comprehensive overview of the topic and recommendations for what managers, colleagues and victims should know and do following an adverse event. However, most hospitals still do not appear to have formal support programmes and help is provided inconsistently and on an ad hoc basis. The Swiss Medical Association also offers support to physicians via the ReMed support network (McLennan, 2019).

4.4 Commentary

The available evidence, in these selected areas, shows a range of implementation and research aimed at improving the safety and quality of care. Most studies, however, and probably most improvement activity across the country, are small in scale, limited in scope and uncertain in terms of measuring the clinical impact of most interventions. The long-term sustainability of any improvements is hardly ever addressed.

The national programmes have been valuable initiatives, but they have also been quite small-scale with generally fewer than 10 participating institutions and very little formal evaluation.

The surgical safety checklist, for instance, is probably more established in Switzerland now than at the time of the first national collaborative. However, in Switzerland there has been only anecdotal demonstration or confirmation of the positive effects on teamwork, communication and patient outcomes seen internationally.

The evidence for the effectiveness of simulation-based team training interventions in Swiss healthcare is quite limited. Team training is resource intensive and the evaluation of impact is admittedly not straightforward. Nevertheless, given the pioneering work in Switzerland, we would have hoped for a more substantial portfolio of studies of team training interventions, including the necessary controls and evaluation of both team performance and clinical outcomes.

Switzerland has made some important steps in the journey towards a more just and humane approach to those affected by medical errors. However, policies vary widely across the country and implementation is patchy. National policies and guidelines are needed, together with support and training, as providing disclosure and support may be emotionally demanding. The evidence that some insurance companies may discourage communication with patients is particularly troubling and needs further investigation.

Switzerland has the resources and expertise to mount substantial programmes of improvement and to contribute strongly to the international research literature on implementation science and evaluation. However, this will require planning and implementation of larger studies and programmes, with a solid scientific base and formal evaluation of the clinical and economic impacts.

Although many individual professionals are engaged in quality circles and other forums, quality and safety improvement does not seem to be a strategic priority for healthcare institutions. Organisations that provide healthcare services need a much stronger focus on building improvement capacity and running local programmes that complement and support national initiatives.

5 Creating a capacity for quality improvement and innovation

Quality and safety information and interventions are necessary but not sufficient to improve care. Organisations also need a capacity in the sense of having the necessary conditions and capabilities in place (Burnett et al., 2010). Senior management commitment and physician involvement are critical to any programme's success, along with provision of sufficient resources, careful programme management and the presence of the necessary culture, attitudes and values.

Improvement is a challenge, but it is still more difficult to sustain a change and move beyond pockets of excellence to reliable and effective implementation across a whole organisation. Improving care on a large scale requires as much attention to the improvement capability of the organisation as to the interventions implemented. Sustainability requires attention to culture and a long-term vision and strategy (Øvretveit & Staines, 2007). Organisations must also build an infrastructure for quality improvement that includes an information system to track change, long-term resources, an education programme and a department or an institute to support improvement (Staines, 2007).

We cannot discuss all the facets of organisational capability for improvement that have been discussed in depth elsewhere (Nelson et al., 2007; Burnett et al., 2009; Braithwaite et al., 2014). Instead, we focus on a few fundamentals that are widely agreed to provide the essential foundations for improvement.

5.1 Listening to and engaging with patients and caregivers

Patients and caregivers can play an important role in assuring and improving the quality and safety of care. For example, patients can accurately report errors and harm and are often aware of problems not known to healthcare professionals. They have direct experience of critical issues that are largely invisible to healthcare professionals, such as the coordination of care between different providers and the experiences and burdens faced by carers of people with chronic conditions.

Healthcare organisations vary in how actively they seek patient and family experiences and feedback. Complaints and litigation are important, but a poor guide to the overall quality of care. Many healthcare organisations now employ a range of more proactive and timely methods, such as patient surveys, specialist teams to respond immediately to concerns and complaints, regular patient and family forums, and monitoring of social media.

Some systems have created an idealised fictional patient who guides their improvement journey. Esther is a fictional 88-year-old Swedish woman who has a number of chronic conditions, but who nevertheless manages to live independently with a good quality of life. Clinicians and managers in Jonkoping have mapped Esther's journey through all the parts of the healthcare system, trying to see it through her eyes and then to structure it according to her needs (Staines, 2007).

There is considerable scope for patients and caregivers to be directly involved in improvement projects and in the management of healthcare organisations. Patients may be involved in the governance of healthcare organisations, or may act as coaches to other patients or as teachers of healthcare professionals. Patients also bring the viewpoints of other industries accustomed to much higher levels of reliability than healthcare.

5.2 Safety culture and quality improvement

The culture of an organisation is the product of the individual and group values, attitudes and patterns of behaviour within it, all of which determine the commitment to quality and safety. Organisations with a positive safety culture are characterised by communications founded on mutual trust and by shared perceptions of the importance of safety. Unless staff can speak openly about safety and quality problems, there is no hope of addressing them. The evidence supporting the link between safety culture and patient outcomes is growing, suggesting that building a strong culture is an important foundation for improvement (Manser, 2019).

Several internationally established instruments for safety culture assessment in healthcare have been adapted and validated for the Swiss context and employed in university hospitals and other settings (Zimmerman et al., 2013). In 2015, the Conference of Medical Directors launched a large collaborative safety culture survey of 32,000 staff in all public hospitals in the French- and Italian-speaking regions of Switzerland to define common actions for improvement. This is probably the most comprehensive dataset on safety culture in Swiss healthcare (Manser, 2019). The University of Zurich and other centres are working on a variety of methods to improve safety culture such as 'safety dialogues', executive walk-rounds and other approaches (Manser, 2019).

Safety culture assessment remains focused on hospital care but has recently gained attention in Swiss primary and long-term care settings. Safety culture assessment internationally is mostly limited to single institutions, sometimes even single units, but a few established networks have started to look at safety culture across healthcare organisations. Their experience could be a useful guide for wider regional and national initiatives to build cultures of safety, learning and improvement in Switzerland (Manser, 2019).

While safety culture has received most attention from researchers, other cultural attributes are important for driving quality and safety improvement. Institutions such as Intermountain Healthcare in the United States have promoted a culture in which attention to measurement and feedback have become embedded as organisation-wide values (Staines, 2007). The cultural trait is to seek constant reassessment of practice, informed by data. Some call it a culture of learning, emphasising the value of experimentation and the excitement of developing and sharing new knowledge (Bate & Robert, 2008).

5.3 Education and training for improvement of quality and safety

Healthcare organisations exist to deliver care to patients, but they also require a capacity to learn, evolve and change. Healthcare staff therefore need both to deliver care and to be engaged in improving the wider organisation and system. The education and training of healthcare professionals are however primarily focused on technical skills, with much less attention given to teamwork, improvement and organisational change.

For many years, quality improvement was the province of enthusiastic amateurs, but healthcare organisations and systems have increasingly realised that making sustained, measurable improvements to quality and safety requires a scientific approach, as well as core knowledge and skills. The United States Institute of Medicine placed education and training in quality improvement at the core of its strategy. The World Health Organization and other bodies have developed quality and safety curriculums. The Institute of Healthcare Improvement has developed a training platform adapted to its different target audiences (clinicians, managers and executives) (Choupay-Dessard et al., 2019).

Numerous training programmes have been established in Switzerland in the areas of quality measurement and improvement. For instance, the Swiss Academy for Quality in Medicine has developed a Certificate of Advanced Study on Quality in Medicine (Bosshard et al., 2019). A number of universities offer Master's level training programmes as well as specialist short courses. However, there is as yet no core curriculum for quality and safety for medical students or other healthcare professionals. Patient Safety Switzerland has provided training on incident analysis and other topics for many years and many professional associations have provided short courses to their members. Many of these programmes have been adapted and strengthened with the inclusion of additional topics such as patient-centred care and teamwork.

In Switzerland, education and training in quality and safety have been focused mainly on clinical staff. International experience, and indeed experience in Switzerland, suggests that training is needed for all healthcare professions, in early training, postgraduate and professional courses (Choupay-Dessard et al., 2019). The Jönköping Health System, a leader in quality improvement for many years, has trained 50% of its staff in quality improvement methods (Staines, 2007).

In addition to the curriculums offered by universities and training institutes, organisations need to set up internal training programmes as part of their infrastructure for quality. These programmes need to be aligned with the vision, values and strategic priorities of the organisation. Their purpose is to support the leaders of improvement programmes in the practical business of improvement and to enhance the capacity of the wider community.

5.4 Leadership for improvement and innovation

Senior leaders influence quality and safety directly by setting up committees and initiatives and allowing staff time to engage in improvement programmes. Leaders also exert influence indirectly by talking about quality and safety, by showing that they value and seek high-quality

care and by being willing to discuss errors and safety issues in a constructive way. Standards of care are also strongly influenced by people in supervisory roles, such as a nurse in charge of a ward, both in the efficient management of processes and in the attitudes and values they foster in the people they manage (Fulop & Robert, 2015).

Leadership of a different kind is required when improving organisations and systems. Improving healthcare systems is not merely complicated; it is complex in the sense that it cannot be completely planned or predicted. Leaders of change on this scale cannot direct improvement at the front line; their task is to develop strategy and create the conditions in which change can occur. They need to develop a vision for quality and safety, foster and promote a culture that supports open discussion, develop effective improvement teams, enhance the use of measures and information technology and develop leadership at all levels of the system (Ferlie & Shortell, 2001; Ovtretveit, 2011).

The language used by leaders to communicate their vision and describe quality improvement initiatives can also be important. Using phrases such as 'transformation', 'pursuing perfection' or 'zero defects' can alienate staff by making the initiative sound alien or unachievable (Dixon-Wood et al., 2012). When the Jönköping Health System participated in the United States led 'Pursuing Perfection' collaborative, it was necessary to adjust the language and presentation of the initiative (Staines et al., 2015). Switzerland similarly may need to find a language and leadership style appropriate to Swiss culture and languages.

5.5 Building a quality infrastructure

All healthcare organisations in Switzerland, and most comparable systems, employ people with specific responsibilities in patient safety, quality, risk and governance. Often, however, these people have little time or capacity to improve the problems that they identify and monitor. Improvement work often takes second place to other responsibilities and is extremely vulnerable to short-term priorities and pressures. Identifying leaders of improvement at the front line and in management positions is critical to successful implementation. These people need dedicated time within their roles to carry out improvement initiatives (Staines et al., 2015).

Fostering improvement on the front line is valuable in its own right and critical as a foundation for the effectiveness of larger programmes. Successful improvement programmes share some common characteristics (Nelson et al., 2007), including constancy of purpose over time, investment in improvement in terms of both time and resource, integration of information and technology into workflows, ongoing measurement of outcomes, and support from the wider organisation.

The availability of a well-functioning information system is an important part of the infrastructure required to support quality improvement. Clinicians will help collect data if it is easy to do and if it fits into their work processes. Front-line staff engaged in improvement need to see a small number of relevant metrics, graphically displayed in a meaningful way, which can be monitored and regularly discussed by the team. Data analysts are needed to support staff

in choosing the right metrics, processing and interpreting the data, and displaying the data on a dashboard, and to provide coaching and training if necessary (Staines et al., 2015).

Although leaders hope for rapid change, there is probably a necessary period of building a quality infrastructure. In the first phase, perhaps lasting some years, it is necessary to invest in education, training and a 'quality infrastructure', but not to expect any immediate return on investment. At this point, leaders hope for engagement and enthusiasm and the sense of embarking on a journey. In the next phase, organisations should see some signs of improvement in specific areas; these may be incomplete, inconsistent, or hard to distinguish in the face of other changes and developments. In the longer term, when measurement and capacity are mature, then patient experiences and outcomes should begin to improve in a sustainable manner (Ovretveit & Staines, 2007). In Appendix III, we provide a story of a fictional improvement journey in Swiss healthcare, illustrating both the rewards and the challenges along the way.

5.6 Commentary

The challenge of building capacity for improvement is common to all healthcare systems. Table 5.1 provides a summary of the conditions and foundations for improvement seen across many organisations and systems. In Switzerland, there is little information on the quality infrastructures created, the number of staff trained, or the extent to which patients and caregivers have been engaged in safety and quality monitoring and improvement. A survey of Swiss organisations to assess improvement knowledge and capacity would be a valuable foundation for future national programmes.

While information is scarce, we suspect that Swiss healthcare needs to give much more attention to gaining information about patient experiences and to engage patients and caregivers far more in the governance of Swiss institutions. The Swiss Patient Federation has argued that Swiss citizens have very little influence over their healthcare system and that there are few effective mechanisms in place that allow patients' 'voices' to be heard (Ziltener, 2019). For committees and boards, the perspectives of patients are often valuable guides and correctives, ensuring that the concerns of patients and caregivers are at the forefront of organisational priorities.

Training leaders in healthcare and supporting them in the essentials of capacity building and change management are particularly critical. Many valuable programmes are available in Switzerland, but education and training need to expand across all professional groups and to begin earlier in these groups' professional development. Training programmes for boards have been run in Switzerland and could be expanded and evaluated more widely across the country.

More generally, much more attention needs to be paid to the implementation of interventions that have been shown to be effective. Switzerland led the world in the development of team training in surgery, but wider implementation has been minimal. Medication reconciliation is well established internationally and has been piloted in a national programme in Switzerland, but only haphazardly implemented nationally. Implementation science needs to be employed in the design of both local and national interventions.

The advances of recent years have led to a considerable increase in the understanding of the actions needed to both establish and embed implementation in daily practice. Increased coordination among national agencies would greatly strengthen and facilitate regional and national programmes. For instance, the Swiss Patient Safety Foundation might design and lead a national programme, while, in parallel, ANQ might introduce and monitor an indicator linked to the topic of the programme and the cantonal governments might incentivise and support the programme. A range of professional organisations could support the organisational capacity building needed for the longer-term sustainability of the intervention. All of this implies a national critical mass, inter-agency coordination and political will.

Table 5.1 Conditions for successful system-wide improvement (adapted from Baker et al., 2008)

Attribute	Elements
Culture	• Open discussion of safety and quality problems • Organisation policies and practice support learning and innovation • Organisation policies and practice empower all members to participate in improvement • Organisation policies and practice focus on patients and caregivers • Collaboration and teamwork is valued by leaders
Leadership	• Leaders set clear priorities for improvement • Leaders demonstrate both constancy of purpose and flexibility • Leaders celebrate and participate in improvement initiatives • Boards set expectations by asking for reports on improvement initiatives • Physicians and leaders from all professions are involved as team members improvement initiatives
Strategy and policy	• Improvement goals are integrated in the overall strategic plan • Incentives, rewards and recognition are aligned to support improvement work • Operational policies and procedures, including human resources policies, provide dedicated time, rewards and recognition • Roles and responsibilities for improvement are clearly articulated
Information	• Needed clinical and administrative information are readily available • Information is available to support improvement at the frontline • Steering and oversight committees provide direction
Resources	• Organisation provides time for staff members to learn skills and participate in improvement work • Financial and human resources are available for improvement • A core group of improvement experts is available to help teams • Quality improvement department coordinates and supports initiatives
Communication channels	• Organisation communicates widely with stakeholders regarding priorities, initiatives, results and learning • Diversified communication, including newsletters, forums, meetings and intranet sites
Education and training	• Training in improvement methods, implementation science, teamwork and group work, and project and meeting management

6 Governance, regulation and the legal framework

Switzerland's healthcare system, unlike that of other European countries, is financed by a combination of taxes and health insurance premiums. Switzerland is a federalist country, divided into 26 cantons, with highly decentralised government. The cantons, rather than the Federal Government, have the primary responsibility for healthcare. This has advantages, as those responsible for healthcare can respond more easily, and potentially more rapidly, to the needs of local people. However, several short reports, commissioned for this national report, have pointed out that problems also arise from this very distributed leadership. Across Switzerland, there is considerable variability in rules, regulations, indicators, incentives, financing systems and quality assurance mechanisms (Guillod & Christinat, 2019).

Providers of healthcare have a great degree of autonomy, which fosters innovation and entrepreneurship, but which can also be a barrier to integration of care along the patient journey. In a given region, the provider of acute care is generally separate from the provider of mental health, primary care, rehabilitation care, and nursing home or home care. Some providers of different services have merged, but mostly they remain separate legal entities. This multiplicity of providers of healthcare brings challenges for continuity of care for individual patients.

6.1 Legal and regulatory framework

At present, there is no national legal basis directly governing the safety and quality of Swiss healthcare. Legislation splits jurisdiction between the national and cantonal authorities. For example, the Federal Council is responsible for assuring the quality of care funded by mandatory health insurance, but in practice this responsibility is largely delegated to the tariff partners, associations of providers and insurers (De Pietro et al., 2015). The contracts established by these partners are intended to ensure high standards of care. In practice however, they have not effectively used the contractual and other mechanisms available to them to directly influence the quality and safety of care. In 2007, this led the Senate (Council of States) to request a more ambitious quality strategy from the Government. A strategy was duly developed, but the passage into law has been a long and challenging process. Parliament is moving towards consensus, but, in the meantime, the tariff partners are still not including strong requirements for quality and safety in contracts, and little information is available to judge the quality of care.

Numerous federal and cantonal laws contain articles that indirectly address patient safety and quality of care. Federal law covers health insurance and addresses some aspects of the governance of quality of care, by defining the criteria for the authorisation of health professionals and the requirements for the quality of analytical tests, products and procedures. Implementation is the province of various public bodies at national (Federal Council) and cantonal (cantonal public health authorities) level on the one hand, and private institutions (such as the Swiss Foundation for Patient Safety and patient advocacy organisations) on the other. Switzerland has no legal protection for reports of safety incidents, as has been established

in some other countries. Different countries have addressed this problem in a variety of ways, but the lack of legal protection may be influencing willingness to report safety issues in Switzerland (Frank, 2019).

The populations of many cantons are quite small, which makes it difficult to resolve critical issues that are more usually addressed at the national level. For example, many cantons and health systems are interested in patient-reported outcome measures (PROMs), but implementation is associated with significant investment, which may be beyond the reach of a single canton or health system. Developing and implementing quality and safety indicators, for example, is a major undertaking best tackled at the national level (by any country), but formally it is the responsibility of each canton. Whatever the merits of cantonal government, it is often difficult to address problems which require a critical mass of expertise and resources.

Ensuring patient safety and quality of care is essentially the task of the cantons. The cantonal authorities may grant or withdraw individual professional licences to practice, and they play a role in financing and sometimes also operating healthcare facilities. All cantons require a certain level of facilities in order to grant a licence and may require that quality assurance systems be in place. Cantons have several different roles, which may sometimes be in conflict. Cantons are commissioners of care, but they are also providers and at the same time responsible for quality assurance. This potentially reduces their incentive to develop robust accountability mechanisms (De Pietro et al., 2015).

Governance practices at the board level are an important influence on clinical processes and outcome measures in healthcare institutions. A number of practices have been shown to strongly correlate with good clinical outcomes, such as having a board quality sub-committee, including clinical quality and safety indicators in board reporting, putting quality and safety on every board meeting agenda and allocating at least 20% of board time to quality and safety matters (Jiang et al., 2009; Jha & Epstein, 2010).

In Switzerland, boards are usually composed almost exclusively of non-executive members, often with a background outside of healthcare, who are often not at ease discussing clinical issues. Education on both the issues and the stakes of clinical quality and safety is needed to ensure that board members understand the importance of best governance practices.

6.2 Rights of patients

There is no specific piece of federal legislation that summarises patients' rights in a clear and comprehensive fashion (De Pietro et al., 2015). Legislating about the rights of patients is mainly the task of the cantons. In consequence, the rights and responsibilities of patients vary widely across the country. Cantonal legislation on patients' rights exists, but the law in each canton varies considerably in terms of content and the degree of specification. Patient organisations are sometimes able to inform and advise patients on their rights and options. However, although patient organisations can give advice, they have no statutory authority. In contrast, the rights and authority of consumer organisations and gender equality organisations are set out in federal law. A report from the Federal Office of Public Health has proposed that patient organisations should be recognised by law (Federal Office of Public Health, 2015).

Arrangements for liability also vary across cantonal boundaries, making it difficult for patients and caregivers who have suffered harm to obtain appropriate compensation. The burden of proof rests with the person affected or their legal representative. The people affected also have to bear the costs of investigation themselves, unless they have taken out legal expense insurance. Combine this with the lack of any legal responsibility to openly disclose harm and it becomes clear that patients who have suffered harm face considerable barriers to obtaining either explanation or compensation (Guillod & Christinat, 2019; Ziltener, 2019).

6.3 Accreditation

Most safety-critical organisations, such as aviation and nuclear power, operate in a strong regulatory environment with constant monitoring of performance and threats to safety. Regulation is ideally responsive in nature with the regulatory organisation acting as a partner in the shared enterprise of ensuring safety and quality, but with the possibility of sanctions and interventions when required. Many European countries have a strong central healthcare regulator such as Haute Autorité de Santé in France and the Care Quality Commission in England. There appears to be no Swiss equivalent at either the federal or the cantonal level.

In Switzerland, there is no compulsory accreditation programme for healthcare institutions. There are voluntary accreditation programmes such as SanaCERT and EQUAM, but the majority of facilities choose not to pursue accreditation. The cantonal health authorities mandate or recommend accreditation only in exceptional cases (Mylaeus-Renggli et al., 2019; Hosek & Bezzola, 2019).

SanaCERT Suisse has 25 quality standards for acute care and 16 for long-term care. The standards serve as guidelines for the institution concerned. Institutions that aim for accreditation have to adhere to certain mandatory standards and choose to adopt a number of other quality standards. Small multi-professional teams audit the standards with a programme of on-site inspections and discussions (Mylaeus-Renggli et al., 2019). The EQUAM Foundation accredits primary care practices according to guidelines developed in accordance with European standards. In addition to accreditation of primary care practices, the EQUAM Foundation also offers accreditation for specialist practices, radiology institutes and integrated care doctor networks (Hosek & Bezzola, 2019).

6.4 Commentary

The Swiss healthcare system is very complex, difficult for patients to understand and has many inconsistencies in approach across the country. The complexity of the system is particularly challenging for the ageing population and for any patient with complex needs. The Swiss Academy of Sciences has proposed that patients with complex problems should have a designated 'navigator' to help them access the care they need (Swiss Nurses Association, 2019).

The Swiss Patient Federation points out that this complex network of varying responsibilities means that there are no clear mechanisms of either accountability or quality assurance across the system (Ziltener, 2019). Patients' rights need to be developed through benchmarking and

following the best practices of other countries, as is currently being discussed (Federal Office of Public Health, 2015; Rütsche et al., 2013).

The complex net of responsibilities of the Swiss Confederation, its cantons and communes makes it difficult to mount large-scale interventions to improve quality and safety in the field of public health. Integrating and coordinating care are challenges in all health systems, as they try to meet the increasing number of patients with multiple long-term conditions. Such integration is likely to be particularly challenging for Switzerland. Programmes are needed to integrate relevant databases and pathways of care between hospitals and primary care, between physical care and mental health, and between hospitals and home care.

The World Health Organization suggests that producing a short document to summarise the overall safety and quality strategy is an important step for any country (WHO, 2018). Many national programmes and initiatives need to be coordinated at the national level simply because it is almost impossible to find the necessary critical mass of expertise and resource at the cantonal level. Programmes are needed, for instance, to develop quality and safety indicators, to improve education and training in quality, and to improve coordination and integration of clinical databases and other major issues. Most cantons are simply too small to carry out these critical tasks effectively and efficiently. This does not mean removing control of healthcare from the cantons, but it is necessary to identify areas in which national or international bodies are in a better position to succeed than cantons and local organisations.

The complexity of the legal structures makes it hard to identify who is responsible for overseeing which aspects of healthcare. There does not appear to be any immediately understandable system for monitoring standards, inspecting healthcare organisations or undertaking any other means of regulatory intervention. Both professionals and organisations enjoy a level of autonomy which is now rare in comparable healthcare systems. From the patient's point of view, the healthcare system lacks transparency, in the sense of not providing sufficient information on the quality of care (Ziltener, 2019).

To the outside observer from another country, Swiss healthcare appears to have very little oversight or regulation. Regulation in healthcare is not a panacea and is only one of many influences on quality and safety. However, most countries have systems to detect failing units and organisations and to intervene before serious harm occurs. In Switzerland, such monitoring systems appear to be weak, which means that the legal framework of responsibilities is in practice not capable of enforcement.

7 Recommendations

The Swiss healthcare system has many strengths, but the findings of our report suggest that the quality and safety of care can be substantially improved. Our recommendations provide an overall framework and direction for Switzerland and we identify a number of priority areas for action. The 28 reports that accompany the Swiss National Report provide additional recommendations on specific themes and topics and should be considered as complementary to the national report.

We begin with recommendations to strengthen involvement patients and caregivers as partners. The voice of patients and caregivers needs to be heard more loudly and with greater clarity in Swiss healthcare. We then present recommendations on engaging and supporting professionals, because there can be no true quality for patients without an engaged, committed workforce. Building a just culture is also essential and the most critical aspect of this is to support patients, caregivers and staff in the aftermath of error and harm.

Transparent and valid information on clinical processes and outcomes is a fundamental requirement of safe, high quality care. This should be a major priority for Switzerland. Staff may be enthusiastic about safety and quality improvement, but they also need education and training in the underlying disciplines and a supportive working environment. Effective improvement relies too on an underlying infrastructure of data analytics, expert support and committed leadership. With all this in place, national programmes of real power and consequence can be mounted. Finally, the improvement of healthcare needs to be supported, guided and resourced, through an integrated approach to the governance and leadership of the healthcare system.

Each recommendation is directed to the attention of one or more organisations or people. In most cases, this will mean convening the relevant stakeholders, making a plan of action and then identifying the leadership of specific programmes of work. There is no assumption that the organisation named will actually lead the initiative in the longer term. For instance, we may have directed a recommendation to the Federal Office of Health. However, they might appoint a group of stakeholder organisations to actually run the programme.

We have also given a sense of priority and scale of challenge by indicating a timescale within which a recommendation should be completed, or at least achieve substantial and measurable progress. We have proposed:

- Short term: completed within one to two years
- Medium term: completed within three to five years.
- Long term: strategic programmes that should be initiated soon but which should plan for a long period of development of more than five years

7.1 Involving patients and caregivers as partners

Public satisfaction with the Swiss healthcare system is high, although Swiss people are increasingly aware of errors and problems with their care. Swiss people have very little information about the standards of care provided and Swiss patient organisations are not well represented in the governance of the healthcare system. Patients could play a much stronger role in providing feedback of experiences of care, checking the accuracy and completeness of medical records and reporting specific concerns and the quality and safety of care. There is evidence that vulnerable groups may find it difficult to access care and sometimes receive a different standard of care.

	Directed to	Timescale
Develop a succinct and straightforward national statement of values, rights and responsibilities for both staff and patients in Swiss healthcare. Strengthen the rights of patients in Swiss healthcare.	Federal Office and cantons	Short
Healthcare provider organisations, professional organisations and quality and safety improvement organisations should seek out the patient and carer voice as an essential foundation for safe, high quality care. This would include routine monitoring of patient experience, involving patients in improvement initiatives and in the governance of the healthcare system.	Healthcare leaders and organisations	Medium
Strengthen and support patient organisations in Switzerland through independent funding at both cantonal and federal levels, so that they can supply information to patients and strengthen engagement with the healthcare system at all levels.	Commission and cantons	Short
A review should be carried out to examine the access and quality of care provided to vulnerable people and consider how to reduce barriers to care. Vulnerable people include frail older people, people with disabilities, refugees, those with mental health problems, and others who may be disadvantaged in the healthcare system.	Commission	Medium
Professional organisations (for example medical societies, nursing associations, allied health groups) should give priority to formal training in shared decision-making and the application of methods to improve shared decision-making. Healthcare organisations should work to embed the approach whenever it is relevant and valued by patients.	Professional organisations and healthcare leaders	Short to Medium

7.2 Engaging and supporting professionals

Professionals who feel engaged, supported, and empowered are better able to provide high quality care than those who are less so. The shortage of qualified professionals in Switzerland provides an additional incentive to design a system in which professionals find meaning and fulfilment. A strong safety culture is an essential foundation for quality and safety improvement work but requires more attention in Switzerland.

We would also strongly encourage active attempts to build a community of professionals from all relevant disciplines who work on quality and safety improvement. Previous national conferences on quality and safety, occurring sporadically over the last 15 years, have been very successful events. Such conferences need to become a regular event and opportunity for national debate and discussion of the quality and safety of care.

	Directed to	Timescale
Valuing, empowering and supporting the professionals and the teams		
Involve front-line staff in the implementation of improvement initiatives and provide them with resources and dedicated time. Data systems need to provide teams with timely feedback on the quality and safety of care.	All healthcare leaders and organisations	Medium
Healthcare staff should seek opportunities to be engaged in improving the system as well as caring for patients.	Healthcare staff at all levels	Short
Quality improvement and safety culture		
Leaders at all levels should aim to build a fair and just culture in which learning from errors and adverse events is encouraged. Leaders need to foster an environment of open communication, freedom to speak-up, and report errors and risky behaviours. Leaders should also aim for a culture of respect, fulfilment at work and staff well-being.	All leaders of healthcare (provider) organisations	Short
A repository of validated safety culture assessment should be established together with a toolkit of interventions based on existing international research and experience. The importance of safety culture assessment should be promoted nationally with clear expectations for implementation.	Patient Safety Switzerland	Medium to long term
Building a quality and safety community		
A national quality and safety conference should run at least every two years and ideally annually. Such a conference would support and develop a community of improvement professionals and foster networking and cooperation.	FOPH	Short

7.3 Improving and using quality and safety information

Switzerland lacks a nationally agreed set of quality and safety indicators especially in the fields of long-term care, ambulatory care, home care. Well-resourced systems of data capture are needed to greatly expand the scope of measurement of processes and outcomes. After decades of only partially addressing this issue, Switzerland is in a completely different position to comparable European systems.

A national effort is needed to design a comprehensive system of quality and safety indicators across all areas of healthcare that could be implemented nationwide at a reasonable cost. These indicators should be used to help healthcare professionals monitor and improve their practice and to assist managers and policy makers to organise and monitor the system to provide optimal healthcare. This information should be publicly available which would greatly improve transparency across the system.

The development of e-health and the development of the electronic medical record have commenced but with comparatively little harmonisation of different applications or a wider vision about the requirements for a unified system for Switzerland as a whole.

	Directed to	Timescale
A strategic review is needed to develop a comprehensive set of safety and quality indicators for use across Swiss healthcare. Quality and safety indicators should be harmonised and coordinated nationally. Where possible indicators should focus on the entire patient journey including both process and outcome measures. Public reporting of validated indicators should, after a phase of testing, be standard practice.	Commission	Short
Patient Reported Outcome Measures (PROMs) need to feature prominently in the national strategy. PROMS and other means of gaining feedback from patients and caregivers need to be more strongly embedded in all healthcare organisations.	Commission, cantons and healthcare organisations	Medium
A study of harm in Swiss healthcare should be commissioned with the longer-term aim of integrating indicators of harm in the national data set. The study would also provide direction for future national programmes to reduce harm to patients.	Independent organisation chosen by the Commission	Medium
The integration of different clinical information systems needs to be drastically improved. Many systems are in use across the Swiss healthcare system with little communication between different clinical databases and different parts of the healthcare system. Recommendations for healthcare institutions should be developed for the optimal use of technology, including electronic patient records, clinical decision support systems and artificial intelligence, including clear suggestions on how to select them, implement and use them safely while protecting confidentiality.	Commission	Long

7.4 Supporting patients, caregivers and staff after harmful events

Patients may suffer in two ways when their treatment goes wrong and causes them harm. First, from the incident itself, and secondly from the way in which the incident is managed after it occurs. Staff too may suffer considerable psychological effects from adverse events and, if seriously affected, their work may be affected making them a risk to future patients. Swiss organisations and researchers have made important contributions to the policies and practice of open disclosure and support for patients, caregivers and staff after adverse events. However, the implementation of these policies has been slow and extremely haphazard. This is an area where a great deal could be achieved relatively quickly, which would be of benefit to patients and staff and contribute to the development of a just culture in Swiss healthcare.

	Directed to	Timescale
The experiences of patients, caregivers and staff after adverse events should be addressed in the training of all undergraduates and postgraduates in all healthcare professions. Professionals need to appreciate the underlying experiences and know how to respond to patients, caregivers and colleagues in such circumstances. Training in communication in challenging encounters is an essential part of such programmes.	Universities, schools of professional education, and professional organisations	Medium
There is currently significant and unwarranted heterogeneity in open disclosure policies in Switzerland. It is recommended that key stakeholders come together to agree on a common national approach to open disclosure guidance drawing on international research and existing guidance.	Commission	Short
Swiss health care organisations should implement more systematic support programmes for patients and caregivers affected by harmful events. All healthcare staff should understand their organisation's approach to open disclosure.	Cantons, healthcare leaders and organisations	Medium
Swiss health care organisations should implement more systematic support programmes for staff affected by harmful events. The implementation of systematic support programmes should be combined with educational efforts to increase awareness of the issue.	Cantons, healthcare leaders and organisations	Medium

7.5 Education, training and research for quality and safety

In the past twenty years, the education and training of healthcare professionals in Switzerland have been adapted to reflect the growing awareness and importance of patient safety. To address the challenges that the Swiss health system is facing today and will face tomorrow, it is necessary to develop additional domains of training such as quality management, human factors and the science of implementation. All the actors of the system such as policymakers, executives, operational leaders, clinical leaders, and frontline staff need access to these education programmes. Research is needed to further develop understanding and application of quality and safety improvement, human factors and implementation science.

	Directed to	Timescale
Education and training of healthcare professionals		
A quality and safety curriculum should be established for every healthcare professional as part of their core training and formally assessed by examination. The curriculum would ideally involve practical experience of participation in an improvement project or programme.	Swiss Academy Medical Sciences	Short
Universities and professional associations should develop a core faculty with expertise in patient safety and quality improvement. This faculty can then assist in curriculum development and provide training to those involved in national programmes.	Universities and professional associations	Medium
Quality improvement skills and competencies should be regarded as core professional requirements. Quality and safety issues should be included in licensing examination for all medical specialties, nursing and allied health professionals.	Professional associations	Medium
Masters level programmes, open to any relevant profession, should be created to train experts in quality and safety improvement. Such courses would address relevant scientific disciplines such as human factors, the economics of quality and safety, and implementation science. Ph.D. programmes to train teachers and researchers in quality and safety improvement are also needed.	Universities	Medium
For leaders and boards		
Senior leaders, boards of trustees of provider organisations should be trained in best practices of governance for quality and safety. The training should include the essentials of building a quality infrastructure and the role of leaders in implementation and change management.	Intercantonal cooperation by language region	Medium

7.6 Building capacity for safe, high quality care

Achieving sustainable organisation-wide improvements requires an underlying quality infrastructure, which includes a network of improvement leaders, executive support, data systems, indicators and dashboards, and support structures for quality and safety improvement. The environment in which care is delivered also has a clear influence and may affect the quality and safety positively or negatively. Many professional organisations are doing important work to develop skills in quality and safety improvement but there is little information on the capacity of Swiss provider organisations to carry out improvement programmes. Experience with both regional and national programmes would suggest that many organisations have little understanding of what is needed to build the capacity and capability for continuous learning and improvement.

	Directed to	Timescale
A survey of Swiss organisations is needed to assess improvement knowledge and capacity both to run internal improvement programmes and to respond effectively to national initiatives.	Federal Office	Short
Healthcare organisations should develop capacity in safety and quality monitoring and improvement and wider organisational change. This includes providing leadership development, providing dedicated time and resource for improvement activities, developing skills and providing a long-term vision and strategy for the continual improvement of safety and quality of care.	Cantons, leaders and provider organisations	Medium
Data analytics should be strengthened in all healthcare organisations with an emphasis on the production of accessible, actionable and relevant information to support clinicians and managers in monitoring and improving care.	Cantons and provider organisations	Long
Organisations that promote and support quality improvement activities should be strengthened and supported to more firmly establish quality and safety initiatives both within and across Swiss regions to complement national initiatives.	Intercantonal cooperation by language region and Commission	Medium
All advanced healthcare systems are working to integrate care along the patient journey. The Swiss system is particularly fragmented. Developing methods of improving the coordination and integration of care, but especially for patients with multiple clinical conditions, should be a long-term strategic priority.	Commission	Long

7.7 National programmes to improve patient care

National quality and safety improvement programmes should be established where there is a known national challenge and robust evidence-based best practices. At any point in time there should be several national programmes running in parallel, on different topics addressing different areas of healthcare.

National programmes to improve quality safety so far have used a collaborative model and primarily focussed on the introduction of specific interventions such as the surgical safety checklist. This is a valuable approach but future programmes need to become more ambitious in scope, scale of implementation and sustainability. These programmes should be coupled with formal evaluation research to assess clinical outcomes and wider impact on patients and staff. All regional and national programmes should include an economic analysis of costs and benefits. Programmes may address priority clinical areas or wider themes, such as inter-professional teamwork, that have applicability across the healthcare system. Collaborative programmes on specific issues will of course still be valuable within the context of larger national programmes. Collaborative programmes should seek national implementation of best practices for all eligible patients, with rigorous evaluation and feedback both during and after implementation.

We propose some immediate priorities for the coming years, based on the short reports received and discussions with experts. We realise that there are other potential priorities that might form the basis of national programmes. However, we thought it necessary to give some indications of the form such programmes might take and we believe that the four we have chosen are undoubtedly important. Patient quality and safety improvement efforts need to expand in primary care, community and homecare settings with the necessary adaptations or as new developments.

Medication safety	Directed to	Timescale
Priorities within this programme would include the development of a comprehensive national medication safety strategy with binding regulatory requirements. This should include guidance for quality assurance systems covering the entire medication use process, including transitions of care. Other priorities include the comprehensive digitalization of the medication process and the provision of technology and devices to improve medication safety in all settings. Systematic medication reconciliation should be introduced at transitions of care.	FOPH in short term and then Commission	Medium

Improving the care of frail older people		
Priorities within this programme would include: consideration of the role and need for geriatric assessment in all relevant settings; knowledge and skills for geriatric care; standards of care in the home and in nursing residences; the role and burden falling on informal and unpaid carers at home; the provision of respite care, support, and training of caregivers.	FOPH in short term and then Commission	Medium
Improving the care of people with mental health problems		
Priorities within this programme would include: early detection, treatment and prevention of mental health problems; crisis intervention to prevent hospital admission; the engagement of people with mental problems in making informed decisions and participating in their own care; improving the care of physical comorbidity; consistent arrangements for financial and social support across Switzerland.	Commission	Medium
Teamwork for safety and quality		
Inter-professional communication and teamwork should be the topic of a national programme and become a core strength and characteristic of Swiss healthcare. The programme should consider training in fundamental communication and teamwork skills, the use of evidence-based structured communication tools and handover tools and established teamwork interventions in all areas of healthcare. Training in communication and teamwork should be embedded in all professional education and sub-specialty training.	Commission	Medium

7.8 Governing, leading and regulating for safe, high quality care

Many short reports draw attention to inconsistent legal frameworks, weak quality control and shortcomings in regulation in Swiss healthcare. A number of reports make strong recommendations for a variety of initiatives to strengthen quality assurance, accreditation and regulation. These concerns have been echoed in previous reports by international bodies such as the Organisation for Economic Cooperation and Development (OECD) and the World Health Organisation.

There is a need for stronger governance and leadership to develop capacity and capability for quality and safety improvement at all levels of the system and to give these topics the priority accorded to them in other countries. National and regional government should set clear expectations, by setting a vision for quality and safety and communicating it widely. They should also encourage the emergence of a community of improvement professionals people via a national platform and congress, stimulate research in areas that support improvement and develop effective and proportionate approaches to accreditation and regulation.

The funding of Swiss healthcare is beyond the scope of the present report and we will not comment directly on either the levels of funding or allocation. Suffice to say that Swiss healthcare is very well resourced by international standards and should be able to mount national programmes on a much great scale and certainly at a comparable level to other countries. Funding mechanisms cannot guarantee high quality care but funding incentives can incentivise organisations to speed the innovation and adoption of new practices and improvements.

Building leadership and governance capacity & capability	Directed to	Timescale
The national vision and strategy for the quality and safety of care should be summarised in a short document and disseminated to all healthcare professionals. Cantons should have their own vision statement and strategy, consistent with the national levels. Healthcare institutions should also have their vision and strategy, consistent with that of the federal and cantonal strategy.	Federal Council, FOPH, Cantons	Short
The governance and regulation of Swiss healthcare should be the subject of a separate review. Regulations and practice for quality assurance appear to vary widely across Switzerland causing confusion for patients and staff. It is not at all clear whether cantons have the capacity to monitor the quality of care or to intervene proactively when standards are compromised.	Commission	Medium

The legal framework		
A review should be conducted to assess the effectiveness of current legal frameworks relating to the safety of care, with attention given to international experience in relevant areas. Particular attention should be given to giving protection to reports of adverse events. Healthcare professionals should be under an obligation, possibly enshrined in law, to communicate any adverse event that occurs during medical care to the patient and caregivers.	Commission	Medium
A review should be conducted to consider whether the medical liability system should move from an assessment of personal blame and fault to one where the need for compensation is more objectively assessed. Alternative systems have been developed in New Zealand and other countries. Periods of limitation and forfeit in liability cases should be harmonised across Switzerland.	Commission	Long

A final word

Our report has listed and discussed many problems that need to be addressed and it would be easy, though incorrect, to think that we do not have faith in the Swiss healthcare system. On the contrary, we admire and respect the care provided and the dedication of healthcare professionals and those who manage and govern the healthcare system. We, and many authors of the short reports, are nevertheless frustrated because there is so much more could be done to improve the care provided and to remedy some of the more obvious deficiencies.

We hope that this report, developed with many Swiss colleagues, will be the foundation for a much larger, more coordinated national effort to improve the quality and safety of care. We hope that our report, and the accompanying short reports, will inspire legislators, politicians, leaders, civil servants, educators, healthcare professionals and patients to engage in this quest for safe, high quality care in Switzerland. This is a long-term national endeavour, a journey of collective learning, but it can start today.

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Appendices

I Short reports and literature reviews

The following short reports, invited reports and literature provide the foundations for the present report:

Bosshard, C., et al. (2019). The current status of quality and (patient) safety in the Swiss healthcare system from the perspective of the Swiss Academy for Quality in Medicine, Swiss Academy for Quality in Medicine (SAQM/FMH).

Burnand, B. and M. Al-Gobari (2019). The safety and quality of healthcare in Switzerland: Indicators and evaluation of quality and safety. Literature Review, Center for Primary Care and Public Health (Unisanté), University of Lausanne.

Busch, P. (2019). ANQ Quality Measurements in Hospitals and Clinics - A pioneering Swiss achievement, Swiss National Association for Quality Development in Hospitals and Clinics (ANQ).

Ceschi, A. (2019). The state of quality and safety in Swiss Healthcare: Contribution of Clinical Pharmacologists and Toxicologists to Improve Medication Safety, The Swiss Society of Clinical Pharmacology and Toxicology.

Chiolero, A. and N. Rodondi (2019). Quality improvement in primary care: toward the provision of safe, high value, patient-centered, sustainable, and data-informed care, Institute of Primary Health Care (BIHAM), University of Bern.

Choupay-Dessard, G., et al. (2019). Education and training in safety and quality improvement, Geneva University Hospitals.

Deschodt, M. (2019). Care for frail older people in the hospital, Nursing Science,, Department of Public Health, University of Basel.

Dörr, P. and C. Küng (2019). Pharmacovigilance, Swissmedic.

Frank, O. (2018). Systems for reporting medical errors and treatment incidents in the Swiss healthcare system: an overview, Swiss Patient Safety Foundation, Zürich.

Genoni, M. (2019). From a surgical point of view, Department of Cardiovascular Surgery, University Hospital Zürich.

Guillod, O. and R. Christinat (2019). Regulation system and quality/safety, Institut de droit de la santé, University of Neuchâtel.

Hannawa, A. (2018). Safe communication between staff and with patients, Center for the Advancement of Healthcare Quality and Patient Safety (CAHQS), Faculty of Communication Sciences, Università della Svizzera italiana.

Hošek, M. and P. Bezzola (2019). Development instead of a standstill: accreditation for medical practices, EQUAM Foundation.

Ihde-Scholl, T. and W. Rössler (2019). Safety and quality of psychiatric care in Switzerland, Pro Mente Sana.

Manser, T. (2019). Safety culture in the context of Swiss healthcare, Hochschule für Angewandte Psychologie FHNW, Fachhochschule Nordwestschweiz, Olten.

Manser, T., et al. (2019). Evidence of implementation of safety and quality interventions. Literature Review., Hochschule für Angewandte Psychologie FHNW, Fachhochschule Nordwestschweiz, Olten.

McLennan, S. (2019). Support for victims (patients, families, and staff) Institute for Biomedical Ethics, University of Basel.

Muff, P., et al. (2019). Medication Safety, Swiss Association of Public Health Administration and Hospital Pharmacists (GSASA).

Mylaeus-Renggli, M., et al. (2019). The understanding of quality management by SanaCERT Suisse, SanaCERT Suisse.

Sax, H., et al. (2019). Infection Prevention and Control in Switzerland, Swiss Center for Infection Prevention Swissnoso and Swiss Infection Prevention Society.

Schneider, P. (2019). The state of quality and safety in Swiss healthcare, Swiss Society for Quality Management in Health Care (sQmh).

Staender, S. (2019). Quality and Safety of Anaesthesiology in Switzerland, Swiss Society of Anaesthesiology and Resuscitation.

Swiss Nurses Association (2019). Swiss National Report on Quality and Safety in Healthcare.

Wasserfallen, J. B. (2019). The economic case for quality and safety, University of Lausanne.

Ziltener, E. (2019). Healthcare from the point of view of patients, Dachverband Schweizerischer Patientenstellen.

Züllig, S. (2019). Harm to patients in Switzerland – an overview, Swiss Patient Safety Foundation, Zürich.

Zúñiga, F. (2019). Frail older people in home care, Nursing Science, Department Public Health, University of Basel.

Zúñiga, F. (2019). Resident safety and quality of care in nursing homes, Nursing Science, Department Public Health, University of Basel.

II Process for the development of the Swiss National Report on Safety and Quality of Care

The authors of the Swiss National Report on Safety and Quality of Care have called for the contributions of a community of experts and organisations in Switzerland. The process for the development of the Swiss National Report has been the following:

- Definition by the authors of the structure of the report and of the key topics to include.
- Identification by the authors of key experts and organisations who could contribute through clinical or thematic short reports.
- Invitation of, briefing and interaction with 25 experts and organisations to produce 28 contributions. Contributions included short reports (clinical and thematic), two literature reviews (on quality and safety data and on interventions) and invited contributions (invitation to organisations involved in quality and safety improvement to present their work, their reflections and recommendations).
- Monthly newsletter to all contributors to share updates about the evolution of the process.
- Provision of feedback to all contributors by the authors, leading to revised versions of the contribution in most cases.
- Extraction of key recommendations from the short reports by the authors, leading to a first draft of the "recommendations" section of the National Report.
- Organisation of a seminar (Federal Office of Public Health and authors) for all contributors, for a consensus seeking discussion about the recommendations.
- Drafting of the Swiss National Report by the authors, drawing from the literature reviews, from additional literature, from experience, from the short reports and invited contributions and from the inputs from the seminar.
- Discussion of the recommendations within the Federal Office of Public Health's Scientific Advisory Board.
- Multiple review process of the successive drafts, from voluntary contributors and from members of the Scientific Advisory Board. Progressive refining of the report.
- Second consultation of all contributors about the revised version of the recommendations.
- Final decisions by the authors and writing of the final version of the Swiss National Report.

III The improvement journey: building capacity and capability

This story takes place at a fictitious Swiss Hospital. It illustrates how building capacity, capability and infrastructure supports and sustains improvement.

Daniel Schmit is the Chief Quality Officer in a large Swiss hospital. He is reflecting on a meeting that just ended, where the results of his pressure ulcers prevention programme where communicated to all heads of department and to the hospital's executives. The goal of the programme had been to reduce healthcare acquired pressure ulcers by 60% over an 18-month period and the actual results demonstrated a 76% reduction. Daniel had been at the hospital for two and a half years. He had already had a number of successes in various projects and initiatives, but this was the first hospital-wide major project where he could announce results exceeding goals that had already been bold.

Daniel reflected on how his current experience compared to his previous positions. The most obvious difference was the expectations and the support from leadership. His current CEO was always talking about quality and safety improvement and had immediately given his support to the programme on pressure ulcer prevention. The Executive Board had been impressed, and alarmed, by data showing that the hospital had a five-year average of 5% of patients with pressure ulcers, compared to a national average of 4%. However, the greatest impact had come from a video of three patients talking about the impact of the pressure ulcer: the suffering, the extra time at the hospital, the perceived loss of dignity, and even feeling ashamed in the presence of family members.

The hospital quality department had carried out a rapid review of the international literature. Studies supported the introduction of a bundle of clinical practices to prevent pressure ulcers. The bundle included risk assessment of every patient and five prevention practices for those at risk: daily skin assessment, repositioning patients every two hours, ensuring the right mattress, hydration and nutrition, managing humidity. Audits of current practice were established on an "all or nothing" basis, and showed that only 9% of eligible patients had received all five elements of the care bundle. This was a shock to the clinical teams but had a galvanising effect on the programme.

The multimodal improvement strategy combined risk assessment, systematic application of the bundle and participation in an e-learning module on pressure ulcer prevention. Monthly feedback on pressure ulcer incidence and regular team huddles to discuss progress were critical enthusing and engaging staff. Risk assessment was integrated in an electronic form to simplify the work process. Nursing order sets were adapted to indicate when the bundle was complete for each patient.

Leadership walkrounds and interviews with patient and caregivers provided ongoing stimulus and encouragement. The leadership walkrounds demonstrated executive commitment, as well their recognition and support of staff. Leaders began to feel more passionate about safety and to embrace improvement as part of their wider responsibilities. They developed a better understanding of the challenges of implementing best practice, as well as a less candid, a less mechanistic view of improvement projects.

The CEO was proud of the project and decided to present it to the Board of Trustees. The Board was very appreciative but alarmed to discover that compliance to best practice had

been so poor for so many years. The Board of Trustees asked the CEO to integrate quality and safety indicators into their regular reports and established a board committee to oversee quality and safety of care. One year later the Board decided to include quality indicators in the CEO's performance evaluation, in addition to productivity and finance indicators. The CEO in turn began to ask for even more quality indicators and to align incentives to promote quality improvement across the hospital. Measuring the gap between evidence-based practice and current practice began to be part of the culture, also in other topics than pressure ulcers.

Why had this hospital had such success? Daniel reflected that it was not because it had any particular advantages but because it had used challenges and opportunities to become a learning organisation. Over time, with goodwill and sustained and committed leadership, the infrastructure, capacity and the capability developed and matured to open up new horizons of system-wide improvements and sustainability.

IV List of tables and figures

V List of abbreviations and acronyms

ANQ	National Association for the Development of Quality in Hospitals and Clinics
A-QUA	Swiss national registry of quality in anaesthesiology
ASQM-SAQM	Swiss Academy for Quality in Medicine
BIHAM	Institute of Primary Health Care, University of Bern.
CAHQS	Center for the Advancement of Healthcare Quality and Patient Safety, Università della Svizzera italiana.
CHF	Swiss Francs
CIRRNET	Critical Incident Reporting & Reacting NETwork
CIRS	Critical Incident Reporting System
DRG	Diagnostic Related Group
EQUAM	External Quality Assistance in Outpatient Medicine Foundation
ERAS	Enhanced Recovery After Surgery
FMH	Swiss Medical Federation
FOPH	Federal Office of Public Health
FoQual	Quality Forum for the Chief Quality Officers from the French-speaking and Italian-speaking hospitals.
HAI	Hospital-acquired infection or Healthcare-associated infection
ISO	International Organisation for Standardisation, Geneva
KVG/LAMal	Swiss Health Insurance Act
NHS	National Health Service (United Kingdom)
OECD	Organisation for Economic Cooperation and Development
Ph.D. programmes	Doctoral programmes
PROM	Patients reported outcome measure
QI	Quality improvement
ReMed	Swiss Physicians Support Network
SIRIS	Swiss National Implant Register
sQmh	Swiss Society for Quality Management in Health Care
SSI	Surgical site infection
Swissmedic	Swiss Agency for Therapeutic Products
Swissnoso	Swiss National Centre for the Infection Prevention
TeamSTEPPS	Team Strategies and Tools to Enhance Performance and Patient Safety
WHO	World Health Organisation

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Oxford and Clarmont

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