Cancer Survivorship Survey – Fribourg (CSS-Fri)

Research legislation:	Ordinance on human research with the exception of Clinical trials (HRO) [1].
Type of Research Project:	Research project involving human subjects
Risk Categorisation:	Risk category A according to ordinance HRO Art.7
Project Leader:	Marika Bana, PhD, associate Professor UAS Haute école de santé Fribourg, Routes des Arsenaux 16a 1700 Fribourg, 026 / 306 11 27, marika.bana@hefr.ch

PROTOCOL SIGNATURE FORM

Study Title **Cancer Survivorship Survey – Fribourg (CSS-Fri)**

The project leader has approved the protocol version ***[3.0 (dated 22.11.2023)]***, and confirms hereby to conduct the project according to the protocol, Swiss legal requirements [1, 2], the current version of the World Medical Association Declaration of Helsinki [3] and the principles and procedures for integrity in scientific research involving human beings.

Project leader:

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GLOSSARY OF ABBREVATIONS

BASEC	*Business Administration System for Ethical Committees*
BMI	*Body Mass Index*
CEA	*Carcinoembryonic Antigen*
COPD	*Chronic Obstructive Pulmonary Disease*
CRF	*Case Report Form*
EDC	*Electronic Data Capturing*
FOPH	*Federal Office of Public Health*
HFR	*Hôpital fribourgeois*
HRA	*Human Research Act*
HRO	*Human Research Ordinance*
IoM	*Institute of Medicine*
LDH	*Lactate Dehydrogenase*
MIB-1	*Monoclonal Immunohistochemical proliferation marker*
NAM	*National Academy of Medicine*
NCCN	*National Comprehensive Cancer Network*
NRS	*Numerous Rating Scale*
SCAPE	*Swiss Cancer Patient Experience Study*
SCQ	*Self-Administered Comorbidity Questionnaire*
TIA	*Transient Ischemic Attack*

1 BACKGROUND AND PROJECT RATIONALE

Worldwide, cancer continues to cause long-lasting consequences for individuals, their families and national health services [4]. From 2013 to 2017, the incidence of cancer diagnosis in Switzerland was about 42'750 cases per year, representing an increase of about 3350 cases within five years. For 2021, incidence rates are expected to reach 48 000 cases per year driven by the demographics of an aging population [5]. Some 65% of men and 68% of women survived beyond five years after cancer diagnosis during the period 2008 – 2012, compared to 56% and 62% respectively in 1998 – 2002 [6]. This increase in long-term survival after cancer diagnosis is due to early detection and improved treatment options [7]. The most frequent cancer diagnoses in Switzerland are: prostate, lung, colorectal, breast and haematological cancers in adults, and haematological cancers in children [5]. Increased cancer incidence and survival lead to a higher prevalence of people treated or still being followed for cancer. About 317'000 Swiss inhabitants are currently affected by a cancer diagnosis including all persons living with and after cancer treatments.

Based on the National Comprehensive Cancer Network (NCCN) definition, every person living with cancer from diagnosis until end of life is a survivor [8], including three survivorship "seasons": acute survival, extended survival, and permanent survival [9]. Evidence suggests that individuals affected by cancer report specific needs at the end of cancer treatments and beyond. These needs may change over time but do not completely disappear and they continue to impact daily activities such as returning to work [10]. The most frequent unmet psychosocial needs of persons living with cancer include fear of cancer recurrence, uncertainty about the future, worries about loved ones, and support on how to reduce stress [11, 12]. Higher unmet needs are associated with younger age, higher anxiety, and poorer quality of life [12]. According to a study in Germany, 81% of participants reported unmet needs 5-10 years after their first diagnosis, with an average of 11 (SD 7.14) unmet needs per person. Unmet needs are associated with higher comorbidity and distress [13].

We barely know how information needs vary across extended and permanent survivorship seasons. Information needs are related to diagnosis and treatment characteristics, however a majority of studies evaluating information needs have been conducted during the acute survival phase [14]. A cross-sectional survey in Australia including 239 participants for cancer follow-up care revealed that, in general, participants have been comprehensively informed whom to contact if symptoms or signs should occur (> 90%), but only 26% of study participants received precise information on how to interpret symptoms, for example as to what signs or symptoms might indicate a cancer recurrence [15]. Very few studies focus on the general needs of individuals treated or still being followed for cancer; they tend to investigate research questions linked to particular populations or diagnoses [16-18], or they report on different survivorship models [19-21].

If predictive factors leading to future unmet needs could be identified, this would facilitate tailored support by health care providers and return to work. In Europe, return to work rates of people diagnosed with cancer range from 39 to 77%, with a median interval from cancer diagnosis to return to work of 2 years (0.2-23.4 years) [22]. In Germany, 63% of working-age residents diagnosed with breast, colorectal, or prostate cancer returned to work within 8.3 years after diagnosis and another 7% took up a new job [23]. Early return to work is associated with lower fatigue, higher value of work, and job self-efficacy [24]. Conversely, (neo)adjuvant therapy, older age, comorbidities, previous periods of unemployment, large surgical resection and postoperative complications are associated with remaining away from work for long periods [25]. A timely and tailored intervention taking into consideration risk factors for work disability has the potential to shorten time away from work for people affected by a cancer diagnose. A multidisciplinary rehabilitation program in the Netherlands, including occupational counselling and supervised physical exercise for 93 patients diagnosed with a primary cancer and treated by chemotherapy, showed significantly increased return to work rates: from 59% to 86% at 12 months and 83% at 18 months after cancer diagnosis [26].

According to the National Academy of Medicine (NAM) in the USA, formerly called the Institute of Medicine's (IoM), report on cancer survivorship (2006), that assessing psychosocial late effects, providing interventions for consequences of cancer and its treatments (e.g. lymphedema, fatigue), and coordination between primary care providers and specialists are vital to meet the needs of individuals treated or still followed for cancer [27]. Information on whom they should contact and when, if problems or severe symptoms occur, is essential. The Cancer Survivorship Care Quality Framework supports the IoM report's conclusions by defining five dimensions for survivorship programs: surveillance and management of 1) recurrence and new cancers, 2) physical effects, 3) psychosocial effects, 4) chronic medical conditions (e.g. hypertension, diabetes), and 5) health promotion and disease prevention (e.g. vaccination advice, infectious exposures) [28].

Cancer survivorship care in general should meet individual's most important priorities and include interventions to accompany return to work or to resuming family responsibilities. Evidence suggests that a better understanding of the chronic nature of cancer illness, of how to learn to live with cancer, having access to peer networks and social support, being cared for in a holistic health system and by supportive providers, and being empowered to act as an engaged patient, are all among the priorities of persons affected by cancer [29]. Survivorship care should be tailored to local context (e.g. rural/urban settings) and include empowerment to self-management including long term and late effects caused by cancer and its treatments [30] to reduce perceived unmet needs.

The Swiss health system differs from other health systems because the cantons are responsible for health care services, leading to many different providers caring for patients treated and still followed for cancer. Current standard care for this population in Switzerland is mostly provided by specialized inpatient and outpatient cancer rehabilitation centers at hospitals and rehabilitation clinics, by the Cancer League Switzerland, and by cantonal cancer leagues [31]. The Swiss Cancer Patient Experience Study (SCAPE), including French-speaking Swiss cancer patients, revealed that cancer care in general is of good quality (www.scape-enquete.ch). However, 50% of study participants reported that they did not receive sufficient information regarding long-term and delayed effects, and 40% stated that they were not sufficiently supported during follow-up care, including emotional and financial concerns. Delayed effects are symptoms occurring after cancer therapies are finished but nevertheless caused by previous treatment [27]. A cancer diagnosis and subsequent treatments may lead to important financial challenges for Swiss inhabitants [32], thus emphasizing the importance of tailored support. Further, cancer incidence rates are higher in the French and Italian speaking parts of Switzerland (compared to German-speaking areas), probably due to cultural habits regarding smoking and alcohol consumption, and regional differences in screening programs [7]. Based on the results from the SCAPE study and the fact that the Swiss health system is federally organized with different cancer incidence rates between linguistic regions, we conclude that we lack sufficient knowledge related to local residents' unmet needs and their challenges related to returning to work and to family responsibilities and related to the financial challenges that they face.

Our study will focus on persons affected by most frequent cancer diagnoses who are in cancer follow-up care (after active cancer treatment), and patients with controlled cancer disease under long-term oral treatment. The overall aim of our study is to assess late and long-term symptoms and/or problems reported by residents treated or still followed for cancer, their unmet needs after initial cancer treatment, time until return to work/family duties, and to explore predictive factors for unmet needs and longer stay from work. Our results will help inform the development of a tailored and culturally adapted survivorship program in collaboration with concerned residents and local healthcare professionals.

Our research questions are:

- What cancer treatment-related symptoms and/or problems (e.g. physical and emotional symptoms, barriers regarding return to work/family duties) are reported by residents affected by breast, colorectal, lung, and prostate cancer, or by hematological malignancies (lymphoma and myeloma) after one to five years, and five to ten years post-diagnosis?

- What cancer treatment-related factors predict concerned residents' subsequent supportive care needs?
- What cancer related factors are associated with concerned resident' return to work and / or family duties?

We declare a risk category A for this research project according to art. 7 (HRO) [1] based on its observational study design. Participants will answer survey questions regarding perceived symptoms and health-related problems. No interventions will take place.

2 PROJECT OBJECTIVES AND DESIGN

2.1 Hypothesis and primary objective (if applicable, also secondary objectives)

Our primary objective is to describe the prevalence of self-reported cancer-related symptoms / problems reported by residents treated or still followed for cancer, assessed by study questionnaire and HFR (hôpital fribourgeois) medical record documentation one to five years, and five to ten years post-diagnosis. Our secondary objective is to define predictive factors for supportive care needs and duration of return to work / family duties caused by cancer and/or treatment long-term or delayed effects, to inform a future survivorship programme and to identify relevant patient-reported outcomes to evaluate its impact.
We hypothesise that cancer treatment-related factors (e.g. treatment intensity, hospitalisations, concomitant chronic conditions) are positively correlated with future symptoms and problems potentially leading to unmet needs demanding supportive care.
Our second hypothesis is that younger individuals affected by cancer (< 65 years old) might face important challenges related to returning to work or to family duties and in consequence increased financial problems. Better support for financial challenges and support for early return to work or to family duties will be included in the survivorship programme if this hypothesis is confirmed.

2.2 Primary and secondary endpoints

In this survey, we will assess patient-reported symptoms and problems one to five years, and five to ten years post diagnosis based on the NCCN Survivorship Care Survey (Patient Version) [8], complemented with specific questions regarding sick leave and time until return to work, and additional questions based on the IoM report 2006 [27]. To assess chronic conditions self-reported, we added as well 12 of the 13 items of the Self-Administered Comorbidity Questionnaire (SCQ) [33]. The 13th item of the SCQ is related to cancer, that is not relevant because all included participants are diagnosed with cancer. The participant questionnaire will be uploaded to BASEC in French and German.
Additionally to patient-reported outcomes (overall 52 items), we will use hospital medical reports to assess cancer-treatment related factors potentially causing long-term and late effects that may be related to perceived symptoms and problems (18 items, table 1). The NCCN assessment is based on validated questions, but has not yet been piloted or validated in itself [8]. We systematically translated the original questions in English into French and German following basic translation standards by involving health professional experts and considering cultural adaptations for the Swiss context and our health system [34]. Based on pilot-testing the questionnaire, we adapted the answer options into a five-item Likert scale (never-seldom-quite often-often-always) or use a numerous rating scale (NRS) between 0 and 10 to assess pain and fatigue. Assessments using NRS format are widely used and validated for evaluating pain and fatigue integrated in specific symptom instruments, e.g. Piper Fatigue Scale [35] and M.D. Anderson Symptom Inventory [36]. Assuming that not all chronic conditions might be reported in the patient medical record, we added the SCQ, to assess chronic conditions by the survey

participants. This instrument has been validated and widely used in chronic and cancer context [37].
Due to our explorative study design (retrospective cross-sectional survey), we do not define primary and secondary endpoints. Our first objective is to summarize the most prevalent cancer related symptoms and problems perceived by study participants. The second objective is to explore predictive factors related to long term and late symptoms and / or problems. As a conclusion, we will suggest relevant content for supportive interventions to meet individuals treated and followed for cancer unmet needs and to develop a culturally adapted survivorship programme.

Table 1: Hypothesised predictive factors linked to participants and cancer characteristics assessed from medical records:

Patient characteristics	1. Age at cancer diagnosis in years 2. Gender / sex 3. Co-morbidities: cardiovascular (arterial hypertension, myocardial infarction, heart failure), cerebral (TIA, cerebrovascular insult), pulmonary (COPD, pulmonary resection), renal (renal insufficiency), diabetes 4. Supportive durg intake: antidepressants, neuroleptics, painkillers, drugs e.g. cannabis
Cancer characteristics	5. Diagnosis: breast, colorectal, lung, prostate, lymphoma, myeloma 6. Stage: I-IV for solid tumors and lymphoma, ISS for myeloma 7. Tumor proliferation: e.g. MIB-1, PSA, CEA, LDH
Characteristics related to **initial** treatment	8. Cancer related surgery (exception: Port implantation) 9. Radiation dose in gray 10. High dose chemotherapy (yes / no) 11. Intravenous and oral chemotherapy (yes / no) 12. Monoclonal antibodies including IO therapy (yes / no) 13. Antihormonal therapies (yes / no) 14. Targeted therapies (yes / no) 15. Duration of initial treatment in months (yes / no)
Severe side effects caused by initial treatment	16. Provision of granulocyte stimulating factors (e.g. filgrastim) 17. Hospitalization for initial treatment (e.g. high dose chemotherapy, surgery)
Body metabolism	18. Body mass index (BMI) at diagnosis 19. Weight loss or gain (difference in % between first and last body weight at initial treatment)

2.3 Project design

We will conduct a retrospective cross-sectional survey including residents affected by cancer registered at Fribourg cantonal hospital (Hôpital fribourgeois, HFR) sites at Fribourg, Riaz, and Tafers for their initial cancer treatment. The survey questionnaire is based on the NCCN Survivorship questionnaire for patients [8] completed with additional items based on the IoM survivorship report [27] and the SCQ [33]. The survey reporting and study protocol is based on the STROBE guidelines [38].

3 PROJECT POPULATION AND STUDY PROCEDURES

3.1 Project population, inclusion and exclusion criteria

Adult residents diagnosed with solid tumours (breast, prostate, colorectal, lung) and haematological malignancies (lymphoma and myeloma) will be invited to participate in the survey. Inclusion of the above-mentioned cancer diagnoses is based on the most frequent

cancer diagnoses in Switzerland having a high long-term survivorship probability and on haematological cancers treated by long-term *per os* therapies [6, 7].
According to the *Krebsregisterverordnung KRV* [39], cancer diagnoses must be reported to cancer registries. The cancer registry of canton Fribourg started in 2006. We therefore contacted the cancer registry for an estimation of eligible participants and a list of all registered cancer survivors meeting our inclusion criteria. Table 2 summarizes eligible participants for the survey based on data from the cancer registry of canton Fribourg in 2021, completed with HFR medical record data from patients treated between 2019 – 2020 and data from the HFR prostate cancer centre, because these patients are not yet in the registry. Further, persons diagnosed with prostate cancers have been included since 2006 in the cantonal cancer registry, explaining the low numbers of this group in the 5-10 years post diagnosis period.

Table 2: Summary of eligible study participants sorted by cancer diagnosis and post diagnosis period

Cancer diagnosis	1 – 5 years post diagnosis	5 – 10 years post diagnosis
Breast	Fr: 187 De: 39	Fr: 221 De:61
Colorectal	Fr: 110 De: 21	Fr: 77 De: 19
Lung	Fr: 67 De: 12	Fr: 34 De: 8
Prostate	Fr: 74 De: 22	Fr: 8 De: 3
Lymphoma	Fr: 48 De: 12	Fr: 52 De:13
Myeloma	Fr: 14 De: 5	Fr: 15 De:2

Legend: Fr: French-speaking; DE: German speaking

All inclusion and exclusion criteria are summarized in table 3. Residents diagnosed with cancer younger than 18 years are excluded because the HFR does not treat paediatric cancer patients. Inhabitants of Fribourg canton mostly speak French and/or German. We therefore include participants able to communicate in at least one of these languages to represent the cantonal population.
Based on information from the cancer registry in Fribourg, we assume that there are about 1100 eligible residents available for the survey, of whom we expect to include at least n = 600 participants corresponding to a response rate of 55 %. In order to best perform the planned analysis as described in chapter 4.1, we aim to include the maximum possible participants we can reach.

Table 3: Inclusion and exclusion criteria for study participants

Inclusion criteria	Exclusion criteria
• Adult residents diagnosed with cancer (18 years and older) • Diagnosis of breast, colorectal, lung or prostate cancer • Diagnosis of myeloma or lymphoma • Cancer diagnosis one to five years ago • Cancer diagnosis five to ten years ago • Returned completed questionnaire	• Does not speak French or German • Not treated at the HFR • Currently hospitalised for a cancer treatment • Currently under intravenous anticancer treatment •

Based on cancer registry data from 2021, the number of currently eligible residents diagnosed with cancer meeting the inclusion criteria is summarized in table 1.
Participant screening is based on the cancer registry of canton Fribourg and on medical records at the HFR for patients treated in 2019–2020 (these patients are not included in the cancer

registry). We exclude residents diagnosed with cancer from the survey who has not been treated at the HFR.

3.2 Recruitment, screening and informed consent procedure

Since January 2020, all persons diagnosed with cancer have to be informed about data transfer to the cantonal cancer registry, based on the cancer registry law [40]. We therefore assume that not all eligible persons affected by cancer diagnosed before 2020 are fully informed about these procedures and cannot presume that every eligible participant has consented to be contacted. Based on the prepared list compiling all eligible cancer survivors, as described in chapter 3.1, we will invite eligible participants via invitation letters in French and German which will be uploaded in BASEC. Study participation is voluntary.
Screening for eligibility is based on cancer registry information, on cancer diagnosis, date of diagnosis, and verifications to remove persons who are deceased. For every type of cancer diagnosis, we prepared lists of eligible participants to be invited to the survey. Access to sensitive and not yet coded data is restricted to research team members employed at the HFR or HEdS-FR and who are under direct supervision of the PI (M. Bana) or the sponsor (M. Küng).
All eligible residents treated and followed for cancer will be invited to participate in the survey through an invitation letter summarizing the planned study procedures, objectives and including the survey questionnaire with all patient-reported questions (tables 1 and 2). Before sending the invitation letter, a study team member will check the registers of the HFR and the State of Fribourg to evaluate whether the person has died in the meantime. Access to the survey questionnaire will be provided (URL) via the informed consent letter either online or in paper format, according to the choice of each participant. Two weeks after sending the invitation, we will send a reminder letter to increase the response rate. Invited eligible participants have the possibility to return a short information that they don’t want to participate to the survey (Information leaflet will be uploaded to BASEC). A dedicated team member of the HFR prostate cancer centre data management team will call invited participants who did not return any answer (questionnaire or refusal to study participation) after four weeks to provide further study information and ask if she can help with providing further information and with completing the questionnaire provided the person is willing to participate.
After receiving the returned and completed questionnaire from participants, we will consult medical records from those who completed the survey questionnaire and assess the cancer treatment related outcomes (see table 3).
No compensation or payment will be given to project participants.

3.3 Study procedures

The overall project duration is estimated at 12 months: four months for recruitment and eight months for data analysis and publication of results. Participants will complete the questionnaire only once and therefore their implication in the study procedures is short. No subsequent visits are planned for participants.
Patients will complete the questionnaire in electronic or paper format. Subsequently, a study team member (same person who will contact eligible participant four weeks after sending invitation letters) will consult participants’ medical records to assess answers to questions 1 to 18 as listed in chapter 2.2. Original completed paper format questionnaires will be stored and locked in a secure and locked closet at the HFR only accessible to study team members. Electronic questionnaires will be saved on a designated HFR server for study data. An overview of study procedures is shown in table 4.

Table 4: Study procedure summary

Time (weeks)	***>-6 months***	***- 1 month***	***+ 2 weeks***	***+ 4 weeks***	***Survey***	***+ 1 month***
Visit	*Survey preparation*	*Information by letter*	*Reminder by letter*	*Phone call*	*Study questionnaire*	*Medical record*
Cancer registry Fribourg	*X*					
Study invitation letters to eligible participants		*X*				
Reminder letter for survey			*X*			
Oral information by phone call				*X*		
Written consent by returning questionnaire						
check inclusion/ exclusion criteria	*X*			*X*		*X*
Medical history						*X*
Participant characteristics					*X*	*X*

3.4 Withdrawal and discontinuation

Due to the survey's structure, after completing the study questionnaire the participants will quit the study. A study number (code) will be assigned to each participant's questionnaire. Should a participant withdraw participation after having sent her/his questionnaire, the data will be anonymised by deleting the link between the project-specific identifier and the participant's information.
After the phone call four weeks after sending the initial study invitation letter, the contacting of invited participants will stop.

4 STATISTICS AND METHODOLOGY

4.1. Statistical analysis plan

The statistical analysis of the trial will be done at the School of Health Sciences, Fribourg, which is part of the University of Applied Science and Arts Western Switzerland (HES-SO).
First, descriptive statistics (frequencies and percentages for categorical data, means, standard deviations, medians and interquartile intervals for quantitative data) will be run for different groups (cancer entity, age group, language) and for the whole sample. Second, bivariate associations will be computed between survivor or treatment characteristics and reported long-term or late effects (for quantitative data: Pearson or Spearman correlation depending on the joint distribution; for ordinal data: Kendall Tau correlation; for nominal data: Pearson $\chi 2$- test or Fisher's exact test).
Statistical analyses will be carried out using STATA (version 12, StataCorp) with the significance level set at $p = 0.05$.

4.2. Handling of missing data

Missing data will be reported for each outcome. Due to the cross-sectional design, drop-outs are unlikely because participants will complete the survey questionnaire once. No imputation procedures will be applied to handle missing data due to the explorative scope of the survey.

5 REGULATORY ASPECTS AND SAFETY

5.1 Local regulations / Declaration of Helsinki

This project will be conducted in accordance with the research protocol, the Declaration of Helsinki [3], the principles of Good Clinical Practice, the Human Research Act (HRA) and the Human Research Ordinance (HRO) [1] as well as other locally relevant regulations. The Project Leader and the Sponsor acknowledge their responsibilities.

5.2 Notification of safety and protective measures (HRO Art. 20)

The project leader and the sponsor will be promptly notified (within 24 hours) if immediate safety and protective measures have to be taken during the conduct of the research project. The Ethics Committee (CER-VD) will be notified via BASEC of these measures and of the circumstances within 7 days.
Study participants choose voluntary whether they complete the questionnaire or not. Therefore, we inform all contacted eligible participants in the invitation letter how to contact a study team member and how he/she will be supported in case of upcoming questions regarding self-management problems and symptoms related to cancer and its treatments (further details are declared in 5.3).

5.3 Serious events (HRO Art. 21)

If a serious event occurs, the research project will be interrupted and the Ethics Committee notified on the circumstances via BASEC within 7 days according to HRO Art. 21[1]. Due to the study design (retrospective cross-sectional survey), we assume that participants might experience increased concerns regarding cancer recurrence after completing the questionnaire. If so, participants will be referred to a consultation with an oncologist at the HFR and further to a psycho-oncologist if necessary.

5.4 Procedure for investigations involving radiation sources

Not applicable.

5.5 Amendments

Substantial changes to the project set-up, the research protocol and relevant project documents will be submitted to the Ethics Committee for approval according to HRO Art. 18 before implementation. Exceptions are measures that have to be taken immediately in order to protect the participants.

[1] A serious event is defined as any adverse event where it cannot be excluded, that the event is attributable to the sampling of biological material or the collection of health-related personal data, and which:
a. requires inpatient treatment not envisaged in the protocol or extends a current hospital stay;
b. results in permanent or significant incapacity or disability; or
c. is life-threatening or results in death.

5.6 End of project

Upon project completion or discontinuation, the Ethics Committee will be notified within 90 days.

5.7 Insurance

In the event of project-related damage or injuries, the Sponsor will be liable, except for damages that are only slight and temporary; and for which the extent of the damage is no greater than would be expected in the current state of scientific knowledge (Art. 12 HRO).

6 FURTHER ASPECTS

6.1 Overall ethical considerations

The time burden for participants is short. The time needed to complete the questionnaire is approximately 15 to 20 minutes, confirmed by pilot-testing the questionnaire in French and German. Answering the questions might trigger increased concerns regarding personal cancer prognosis and potential cancer recurrence. Participants expressing such concerns will receive information on how to contact the study team and will be referred to an oncologist at the HFR.

6.2 Risk-Benefit Assessment

Based on study design (retrospective cross-sectional survey) we assume a low risk for participants. Our strategies to minimize any risks are described in chapter 6.1. We expect benefits from our survey results to include the development of a tailored survivorship programme which will subsequently be made available to some of the participants. Study participants will not experience a direct benefit. However, they might benefit later from this future programme improving survivorship care access and support.

6.3 Rationale for the inclusion of vulnerable participants

Not applicable.

7 QUALITY CONTROL AND DATA PROTECTION

7.1 Quality measures

At least 10% of data entries by study team members will be double checked, in each cancer type group. For quality assurance, the Ethics Committee is free to visit the research sites. Direct access to source data and all project related files and documents will be granted on such occasions. The sponsor (M. Küng) and PI (M. Bana) will thoroughly brief and supervise the Prostate Cancer Center data manager at the HFR in assessing and transferring medical records data to the CRF (see 7.2). M. Bana will further be responsible for double checking data entries.

7.2 Data recording and source data

Case Report Forms (CRF) will be prepared using a dedicated electronic data capturing (EDC) system (e.g. Redcap®). The EDC system is activated for the study only after successfully passing a formal test procedure. All data entered in the CRFs are stored on a Linux server in a dedicated Oracle database.
Additionally, a paper version of the questionnaire will be supplied to patients who don’t want to use an URL for data entry. The paper questionnaire will be supplied to all participating patients by a study nurse together with an URL. Participants choose between using electronic data entry

via URL or completing the paper questionnaire. A prepared envelope for sending the paper version to the PI (addressed and with stamp) will be included in the invitation letter.
Data entered electronically will be encrypted. Data entry from paper questionnaires will be entered by a study nurse into the EDC system.
Source data used in the project are:

- Cancer registry list from canton Fribourg
- Paper format and electronic questionnaires for participants
- Electronic questionnaires for medical record outcomes
- Paper format medical records (copies)
- Paper format notes for recruitment procedures and screening track records

7.3 Confidentiality and coding

Project data including all source data listed in 7.2 will be handled with uttermost discretion and will be accessible to authorized personnel who require the data to fulfil their duties within the scope of the research project. On the CRFs and other project-specific documents, participants are only identified by a unique participant number. This identification number will be assigned to every survey invitation letter.

The participant identification list will be stored at the HFR by a data manager of the Prostate Cancer Center. Only study team members will have access to passwords and therefore uncoded data: Dr. Marc Küng (study sponsor), Prof. Marika Bana (study PI), and Magali Ropraz (infirmière clinicienne HFR). For data management, an EDC system will be used, ensuring traceability of data entry, alterations, deletion or copying. Safety back-ups will be stored on secure data servers at the HFR.

7.4 Retention and destruction of study data and biological material

All source documents (see 7.2) will be stored at the HFR in a locked closet only accessible to personnel involved in data collection and analysis. Furthermore, survey data will be stored and then separated from the coding list/key code to avoid identification. Matching files (completed survey questionnaires and copies from medical records) will only be identifiable by using a specific key code which is generated by the study team. All study data will be archived at the HFR for a minimum of 10 years after study termination or premature termination of the survey. We plan to store survey data on a dedicated open access data sharing platform (e.g. https://olos.swiss).

8 FUNDING / PUBLICATION / DECLARATION OF INTEREST

The survey is funded by an HFR Grant of CHF 20’000.- Further applications to achieve complementary funding for the subsequent development of a tailored survivorship programme will be made (e.g. Krebsliga Schweiz, Fond’Action).

Survey results will be published in a peer-reviewed journal with preference open access and based on the recently updated recommendations of the International Committee of Medical Journal Editors (www.icmje.org/recommendations). Further dissemination will be carried out through presentations at national and international congresses.

The HES-SO University of Applied Sciences and Arts Western Switzerland supports open data practices. For data sharing, a Swiss-based data management portal will be used (e.g. OLOS or SWISSUbase).

The research team members have no conflicts of interest regarding this study.

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