

The “Right to be forgotten” and its impact on life insurance business

An assessment from an insurance medicine perspective

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1 Executive summary

- The “Right to be forgotten” prohibits the gathering or integration of health information from survivors of cancer and/or certain other chronic diseases after a defined period of time
- EU-wide legislation on the “Right to be forgotten” is on its way, but EU member states will be able to apply tailored versions of it
- From an insurance portfolio and claims perspective, the current impact of the “Right to be forgotten”, if applied to a time frame of ten years and regarding mortality, appears to be manageable for applicants with a long standing history of survived cancer diagnosis
- The main focus of the “Right to be forgotten” is currently on cancer, but in some countries other chronic diseases are also covered or at least being considered for addition in the future
- In a worst-case scenario, the impact could be substantial, but a worst-case scenario applying in all markets seems unlikely
- Our evidence-based underwriting guidelines (MIRA/MDS) already reflect the requirements of the current markets where 10-year “Right to be forgotten” legislation is in place. With some types of cancer, however, the medical evidence leads to the need to deviate from applying standard rates after the relevant period of time
- Risk-adequate underwriting can help extend insurability to long-term survivors of cancer, even under the “Right to be forgotten”

2 Introduction

Life insurance relies on the adequate evidence-based assessment of long-term health risks, based on available information. Any change in this concept can obviously have an impact on the insurance business.

Under strict European data protection rules, the “Right to be forgotten” (RTBF) is a term describing an individual's right to ask organisations to delete their personal data. This term has been used with reference to companies collecting data on individuals' consumer behaviour, mostly via the internet.

In recent years, a “new” RTBF has been introduced in life insurance business which relates to the application process in terms of the health information of individual applicants. The main focus from a policy perspective currently lies on cancer patients. The European Commission has developed the “Europe's Beating Cancer plan” which includes actions to extend cancer survivors' access to financial services^{1,2}. Nevertheless, a final standard definition of RTBF on an EU wide level has yet to be established. A general outline of what is to be expected has recently been published, though – every member state will have to introduce an RTBF which, as a minimum, applies to cancer 15 years after the end of treatment and covers mortality and morbidity. However, member states can decide for themselves after which periods of time RTBF should

apply, i.e. it can reduce the 15 years to shorter waiting periods. Thus the final impact of RTBF is unknown. Moreover, this impact will likely be different from country to country, depending on medical, legal and market issues.

What is clear is that the use of cancer survivors' health information after a certain time will be regulated in the near future. Notably, country-specific legislation or self-regulatory regulations for RTBF in insurance settings are already in place in several EU member states. Some of these forms of RTBF deviate significantly from EU guidelines, reducing time periods and extending RTBF to impairments other than cancer and to products other than Life business.

What does RTBF actually mean in the context of cancer survivorship? It means that a person who has survived cancer, doesn't require further treatment (except for certain maintenance therapies) and has been disease-free for a certain amount of time may withhold information regarding that cancer when applying for financial services in general and life insurance as mortgage protection in particular. In other EU member states, this information must be disclosed to actually apply the RTBF from the insurance side. In practice, this amounts to disregarding any information about the cancer at the underwriting stage or not asking for the information in the first place, provided the applicant is and has been disease-free for a predefined period of time, depending on market guidelines.

However, the way that private insurance works is that relevant information on an applicant's medical history needs to be taken into account in order to determine an individual's risk of mortality and morbidity compared to the general risk within the insured population. This enables individual risk specific premiums to be calculated. If this were not the case, insurance would have to be more expensive for everyone in the insurance pool, as the risk premium is distributed to everyone in the pool. Depending on the extent of this effect, insurance could become unaffordable for large parts of the population, thus preventing the whole principle of private insurance from working. Without price adaptations, portfolios could become unprofitable for the insurance company, and insurance offerings could thus decline. In order to apply insurance premiums tailored to an individual applicant, the knowledge of the applicant's medical history is of the utmost importance. Only with this information can risk-adequate premiums be calculated.

The question that thus arises is what impact there would be if certain information could no longer be gathered, or at least could not be incorporated into the assessment. While for many cancer types or cancers diagnosed at an early stage, low to no impact of RTBF can be assumed after many years of being disease-free, certain cancer types can show significant extra-mortality and extramorbidity, even after long periods of being in remission, i.e. being disease-free. The former group can already often be offered standard ratings, while, for the latter, RTBF would lead to inadequate standard rates.

While the concept of RTBF initially focused on cancer only, there were demands from patient groups and legislators for RTBF not to be limited only to cancer, but to apply to any chronic illness after a certain period of time. In the meantime, more and more markets have introduced RTBF for chronic diseases such as

hepatitis C or cystic fibrosis, while also shortening the survival period where earlier stages of certain cancers are concerned.

The aim of the European parliament is to have common standards regarding RTBF in all EU member states by 2024/2025. For the time being, it is not yet clear whether these standards will come only in the form of a generally accepted self-regulated "code of conduct", or whether RTBF will actually be embedded into proper EU law. The outliers of these standards, as mentioned above, would be an RTBF applicable for cancer only and a 15 year time period as the maximum. Seven EU member states have already taken steps to implement the RTBF in their national legislation.

These countries are France, Portugal, Romania, Cyprus and the Benelux countries (Belgium, the Netherlands and Luxembourg). Others are bound to follow suit over the next few years. France, especially, has strict rules prohibiting any medical underwriting whatsoever if the insurance is for mortgage protection, doesn't exceed €200,000 and the repayment of the credit is before the insured's sixtieth birthday.

All of the foregoing raises the question as to whether RTBF will have a relevant impact on the portfolio and, if so, what the impact might be and how the life insurance industry should adapt. Furthermore, one needs to know whether the underwriting manual can still be used in the customary way.

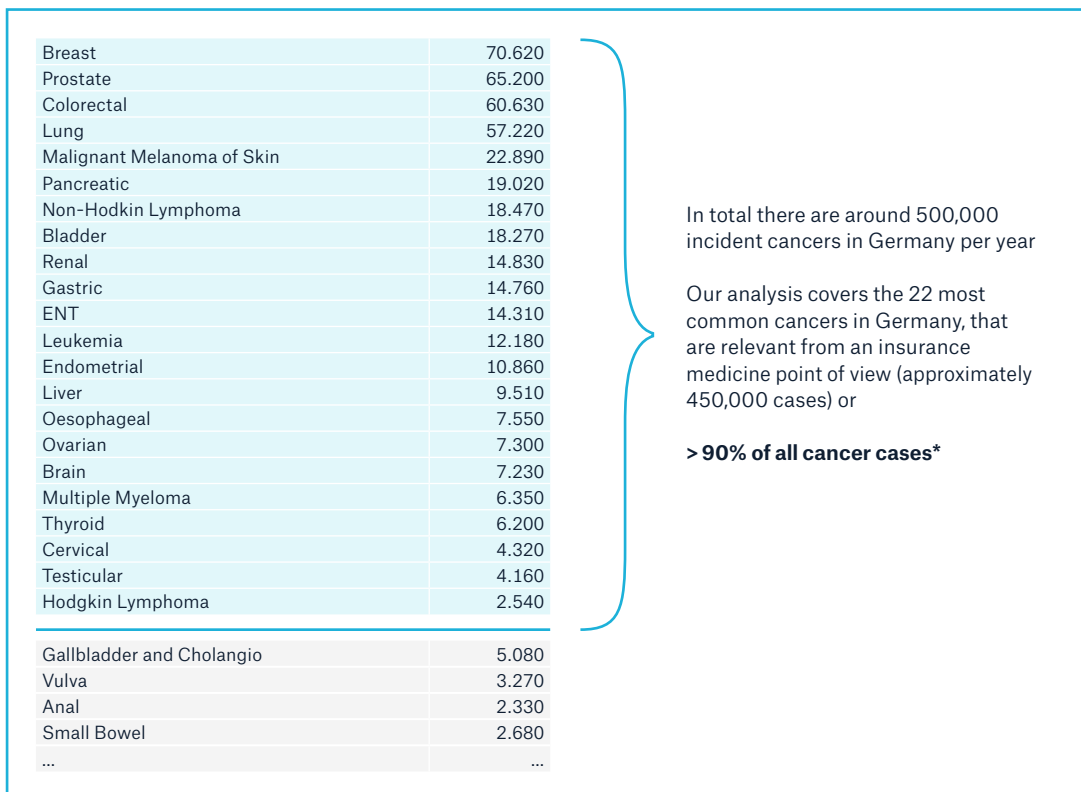
The following paper will shed light on what our assumptions are on the impact on the portfolio and will give guidance on what this means in terms of using our MIRA underwriting guidelines in day-to-day underwriting.

3 Potential impact on the (future) portfolio from an insurance medicine perspective and basic steps to calculate it

Although legislation differs from country to country, the wording of laws has cancer, life cover and a certain time period – mostly a 10-year period for people over 18 – in common as the basis of the "Right to be forgotten", despite the more conservative EU approach of a 15-year period. Focusing on these drivers for change, namely cancer, life cover and a 10-year time period, we analysed for different cancer types whether standard ratings would apply, or what current loadings could no longer be applied, even if from a medical perspective those loadings would have been risk-adequate.

We calculated the number of potential new insurance applications of cancer survivors per year for which a loading (up to a decline) would have been applied before the implementation of the RTBF, but which would now get standard rates instead. In order to cover a substantial amount of all kinds of cancer types,

Figure 1: Incident cancer cases per year in Germany



* non-melanoma skin cancer excluded

we chose 22 of the most frequently reported types of incident cancer (excluding non-melanotic skin cancer) in Germany, with a focus on cancers that are relevant from an insurance perspective³. By doing this, we were able to cover more than 90% of new cancer cases per year in our analysis (Figure 1).

To apply the absolute figures to an insurance population, we focused on the subset of the relevant age group, namely 15-54 years of age, and the cancer stage distribution in this age group for each and every cancer type. Additionally, the typically applied therapy at these respective stages was taken into account. With this as a basis, we calculated the number of survivors without recurrence after 10 years.

This survivor group was further considered in terms of “conditional survival”, i.e. the probability of survival in relation to the years already survived. In this case, this means survival if 10 years have already passed without recurrence of the cancer. The resulting extramortality beyond 10 years was compared with the current MIRA ratings and contrasted with the default standard ratings based on RTBF. Taking the “insurance penetration” rate – i.e. how many people in the 15–54 age group would theoretically apply for life insurance – into account, an absolute case number of potential risks was then calculated that would now receive a standard rating instead of a risk-adequate loading or be declined.

We used figures from the private German market for our calculation, but the approach can easily be applied to other markets, provided that incidence rates, stage distribution, survival rates and the insurance penetration rate are known or assessable for the respective markets. If known, the number of 10-year survivors per cancer type and stage applicable for the RTBF can be calculated. The exact calculation steps taken can be seen below.

For Germany, the calculated number of incident cancers that would lead to a risk-inadequate standard rating instead of a risk-adequate loading (or decline) corresponds to less than 2% of all new cancer cases in Germany. Of these, only very small loadings would have to be waived for a significant proportion. When considering the absolute figures of potential applicants without risk-adequate loadings, including the loadings that the RTBF causes to be dropped, the mortality risk of the portfolio would increase by less than 1%. We therefore assume a small and manageable impact on the portfolio for a 10-year time frame and Life business.

As already mentioned, the above considers life cover only. However, disability/morbidity shouldn't go unmentioned. Broadly speaking, disability loadings beyond 10 years are usually reflected by exclusion clauses (in cases where life cover leads to a loading in MIRA) or declines (when life cover is declined in MIRA), respectively. Additionally, some cancer types require loadings for the long term sequelae of tumour therapy. An example of general sequelae of cancer therapy would be neurological complications, which can be quite debilitating. Cancer-specific sequelae can obviously also play a role, e.g. impaired swallowing after cancer treatment for head and neck cancer. However, most sequelae of tumour treatment usually develop within 10 years after the end of therapy. Acute complications therefore drive morbidity and could be assessed by underwriters

if still present. Long-term morbidity beyond 10 years appears in the form of cardiovascular complications or secondary malignancies due to comorbid conditions, therapy sequelae or genetic predisposition⁴.

Acute morbidity would not be affected by RTBF, as time frames for acute morbidity are far from those applicable to RTBF, even in reduced time periods of between 5 and 10 years. Long-term morbidity remains an issue which would likely not be reflected as it should be by generally applying standard rates after 10 years. However, these loadings come either in the form of ratings in the area of low extramorbidity, i.e. frequently loadings of 25+ extramorbidity, or in the form of exclusion clauses, which in the case of cancer are only partially protective anyway, as one would have to prove, for example, that a cardiovascular issue was caused exclusively by radiation therapy many years ago – a task barely possible at the claims stage. Dropping these loadings or exclusion clauses after 10 years should therefore also be manageable.

The steps that need to be taken to calculate the figures for potential new applications (after 10 years), without the possibility of applying risk-adequate loadings for any given market, are as follows:

Step 1: General population number in given country

Step 2: Subgroup in relevant age group from number stated in step 1

Step 3: Application of incidence rate of given cancer to relevant age group

Step 4: Distribution of incidence rate as calculated in step 3 to applicable cancer stages of given cancer type (stage distribution from cancer databases, for example)

Step 5: Application of 10-year recurrence-free survival rates to subgroups (stages) as calculated in step 4

→ Step 5 leads to the absolute number of relevant cancer survivors per cancer stage for any given cancer that could potentially become part of the portfolio without needing to disclose their cancer history.

Step 6: Application of potential insurance penetration rate to number calculated in step 5 (i.e. proportion of number from step 5 that apply for life insurance)

Step 7: Comparison of recent loadings, e.g. from the MIRA Manual, to now standard rates due to the RTBF.

→ This shows the delta between risk-adequate loadings and the standard rates actually applied. In other words, step 7 shows how many loadings you are losing out on. If these loadings are known, the elevation of mortality in the portfolio can be derived.

Alternative step 7: If conditional survival rates after 10+ years are available for the given cancer from the literature, then the extramortality calculated accordingly can be used as point of comparison with RTBF standard rates.

That said, there is still one more thing to consider: RTBF is a moving target, i.e. its administration is being extended. Impairments other than cancer are being introduced, and time frames are being shortened in some countries (e.g. 5 years instead of 10). An accurate prediction of what is to come is therefore not possible.

However, it is always possible to think of a range of what is likely (see calculation of impact, page 4) and what could be a worst-case scenario.

4 Compatibility with an evidence-based medical underwriting manual

4.1 Requirements to be met by an underwriting manual

The main aim of any medical underwriting manual must be to give risk-adequate and evidence-based assessments of medical impairments. While RTBF with a time frame of 10 years and limited to mortality largely reflects medical prognoses, there are some cancer types which do not follow this path. These cancer types show long-term extramortality after periods exceeding the 10-year mark.

As the focus remains on medical assessment and not on legal requirements, our underwriting manual reflects actual extramortality/extramorbidity and hence shows loadings even after 10 years or more, where applicable.

The following example highlights a cancer for which, even after 10 years, loadings are based on medical evidence, while the second example highlights a cancer for which conditional survival supports offering standard rates within the context of RTBF, but first and foremost due to medical evidence.

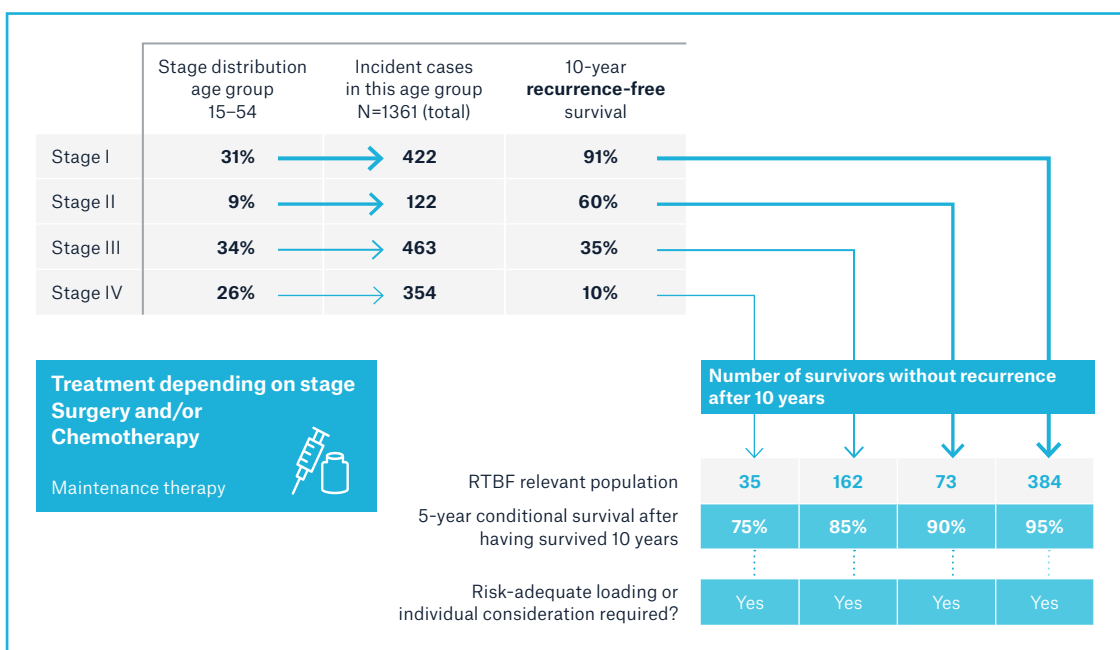
4.2 Ovarian cancer

Ovarian cancer is the second most common female-specific cancer in developed countries and the third most common in developing countries⁵. It is the leading cause of death from gynaecological cancers in parts of the western world. Unfortunately, despite ultrasonography becoming more and more advanced and it being the era of tumour markers, the sensitivity of these diagnostic tools is low, and mortality for this cancer type is still high⁶. Extramortality remains high even after years of remission, and conditional survival never matches the survival of the comparison population (Figure 2). From an insurance medicine point of view, applying RTBF is therefore not risk-adequate and can potentially lead to substandard risks having to be accepted at standard rates.

4.3 Hodgkin lymphoma

Hodgkin lymphoma is a malignant tumour originating from lymphocytes. Although the lifetime risk of developing Hodgkin lymphoma is low, at about 0.2% for women and 0.3% for men, it is one of the five most common cancers in the 10–35 age group⁷. It is therefore a relevant cancer in the working-age population. Therapy has improved in recent decades, and so has long-term survival⁸. But there could still be sequelae due to treatment, such as secondary malignancy or even cardiovascular disease⁹. Relapse can also occur in subsequent years, albeit with decreasing probability over time. Fortunately, in recent years therapeutic success has been high due to more effective and less toxic chemotherapy, advances in radiation techniques, and better stratification and thus treatment selection according to certain prognostic factors.

Figure 2: Calculation pathway for estimating the impact of RTBF
Cancer Type: Ovarian Cancer



Due to these substantial and lasting improvements, long-term extramortality for Hodgkin lymphoma patients who have survived without relapse for several years (conditional survival) could be similar or very close to the general population, depending on the stage of the initial disease (Figure 3). This has led to changes in underwriting manuals in recent years. For lower stages like IA or IIA, it is reasonable to reduce the time period after which standard terms can be offered to less than 10 years, as extramortality normalises shortly after the end of treatment. For higher stages like IIIB, a 10-year interval is a risk-adequate compromise after which standard terms could be offered in the underwriting process, with thorough evaluation of freedom from relapse and other sequelae like cardiovascular disease or secondary malignancy. Even individuals with stage IV disease could eventually have a favourable prognosis after surviving for more than 10 years without relapse, and considering all available information.

In summary, our calculation shows that the majority of long-term Hodgkin survivors can be offered standard terms after certain periods of time, expanding the insurability of this patient group that has benefited from medical advances in recent decades.

5 Discussion

All MIRA cancer ratings were compared to RTBF requirements and, where deviations were present, those deviations were considered in our calculations. Our calculations result in a manageable annual figure of life insurance cases that would not receive an adequate extramortality loading due to RTBF for the whole of the German insurance market. The same

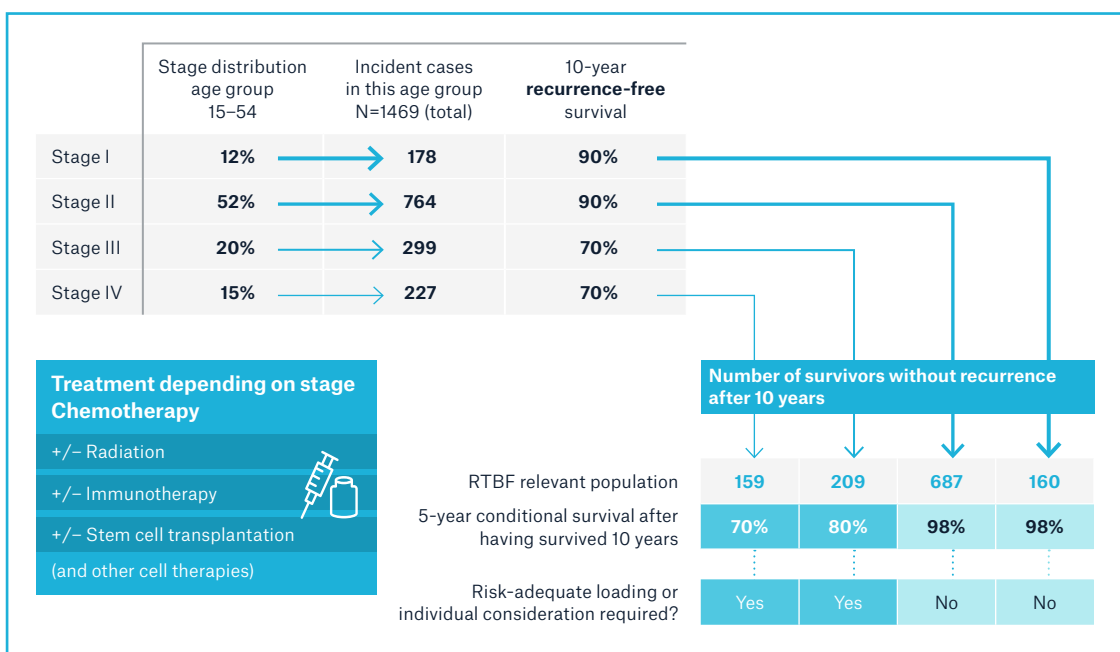
goes for the mortality impact on the portfolio, as a significant number of these cases would have received relatively low loadings after that amount of time, and individual consideration of those cases could also have led to those loadings being waived for reputational or individual prognostic reasons.

Our conclusion is that there should not be too much of an impact on the insurance industry. However, this assessment only applies if RTBF is used for cancer only and the period of time remains at 10 years. We are already seeing this time frame being undermined in some European markets, where shorter time frames are being discussed or actually already being applied for certain cancer stages or for all cancers. Furthermore, additional impairments other than cancer have been added to the list of illnesses that should qualify for RTBF.

The way these additional lists look at the moment, the impact should still amount to a contained risk. Unfortunately, there are signs that RTBF won't rely solely on medical evidence. This can be seen in markets where RTBF is already in place and is being adjusted in a way that could potentially adversely affect the insurance industry. Generally reducing the time frame from ten years to five is also being discussed in some EU member states, or is already being applied.

For now, the good news is that Munich Re's MIRA Underwriting manual can be used as it stands. It is up-to-date and its evidence-based approach is compatible with recent changes to legislation in terms of an RTBF 10 year scenario. This protects primary insurers using MIRA and us, as the leading reinsurance company, from reputational risks and legal challenges. As the "Right to be forgotten" evolves, so MIRA will continue evolving to always stay in line with any recent medical and legal developments.

Figure 3: Calculation pathway for estimating the impact of RTBF
Cancer Type: Hodgkin Lymphoma



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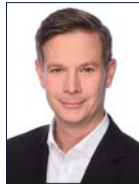
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