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Eliciting healthcare users' preferences for home care versus hospital care in cancer : development of a decision aid integrating a contingent valuation survey

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Eliciting healthcare users' preferences for home care versus hospital care in cancer: Development of a decision aid integrating a contingent valuation survey

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English summary

In France, cancer treatments are mainly provided in hospitals, but they are expensive, crowded and mainly located around big cities. For these reasons, French public health decision makers wish to develop alternative strategies, such as home care and proximity structures (typically GPs, nurses and physiotherapists working together in the same medical office).

Objectives

To study the adequacy between French healthcare policies and patients' and general population's preferences.

To test the acceptability and validity of the contingent valuation (CV) method as a mean to obtain values in the general population to guide public policy decision-making.

Methods:

We developed a computerized decision aid composed of: 1. Information on the disease management options: hospital, home care and proximity structures; 2. A survey to measure preferences. 3. A sociodemographic characteristics and an experience of care questionnaire. 4. For the general population only, a CV survey (*Willingness To Pay, WTP*) using a payment card.

Results:

Patients' survey has been realized in three hospitals (n=386) located in the Rhône-Alps Region and the general population survey has been conducted among a representative sample of the Rhône-Alps Region (n=1001). Both populations preferred hospital, but the proportions were very different. Hospital was the preferred option for 71.0% of patients and only for 42.6% of the general population, followed by home care with 24% of patients and 38.8% of the general population. The acceptability and validity of the CV method tested in the general population seemed to be confirmed by the few rates of protesters and outliers, the correlation between preferences, income and WTP.

KEYWORDS: Cancer, Contingent Valuation, Willingness To Pay, Home care, Public decision-making.

French title & french summary

Titre en Français

Mesure des préférences des consommateurs de soins pour les soins à l'hôpital, à domicile ou en structures de proximité : développement d'un outil d'information et d'aide à la décision intégrant une évaluation contingente.

Résumé

En France le traitement du cancer est principalement dominé par les plateaux techniques hospitaliers, mais ceux-ci sont saturés et jugés trop coûteux. Pour ces raisons, le décideur public souhaite développer des structures alternatives : l'hospitalisation à domicile ou les structures de proximité (SP) comme les maisons de santé pluridisciplinaires.

Objectif :

-Etudier l'adéquation entre les politiques publiques de santé et les préférences des patients et de la population générale.

-Tester l'acceptabilité et la validité de la méthode de l'évaluation contingente (EC) (enquête de Disposition A Payer : DAP) comme moyen d'obtenir les préférences en population générale afin de guider la décision publique.

Méthode :

Nous avons développé un outil d'information et d'aide à la décision informatisé qui contenait 1. L'information sur les trois options de prise en charge : hôpital, domicile, SP 2. Une enquête de mesure des préférences 3. Des questionnaires socio-démographiques et de recueil de l'expérience de soins 4. Pour la population générale uniquement, une EC.

Résultats :

L'enquête auprès des patients (n=386) a été réalisée dans 3 établissements de la Région Rhône-Alpes et celle en population générale a été conduite sur un échantillon représentatif de la même Région (n=1001). L'hôpital était l'option préférée pour les deux populations, 71.0% des patients contre 42.6% pour la population générale, suivi du domicile avec 24% pour les patients et 38.8% pour la population générale. L'acceptabilité et la validité de l'EC en population générale semblent être confirmées par le faible nombre de protestataires et d'outliers, ainsi que par la corrélation entre les DAP, le revenu et les préférences.

Mots clés : Cancer, Evaluation Contingente, Disposition A Payer, Soins à domicile, Décision publique.

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Résumé substantiel en français

Politiques de santé et préférences des patients

Ces dernières années, la relation médecin-patient a considérablement évolué, passant d'un modèle paternaliste à un modèle de prise de décision partagée dans lequel les préférences des patients sont centrales. Outre l'argument éthique en faveur d'une meilleure prise en compte de ces dernières, plusieurs études ont montré leur bénéfice sur la santé. Les patients informés par le médecin (professionnels de santé), révélant leurs préférences au cours d'un échange avec celui-ci et prenant les décisions de santé qui les concernent sur la base d'un accord commun avec leur médecin, communiquent mieux avec le médecin, comprennent mieux et sont plus satisfaits de leur prise en charge, sans pour autant être plus anxieux que des patients non informés et non associés au processus de prise de décision. Prendre en compte les préférences des patients permettrait donc d'améliorer la qualité des prises en charge (Dirksen et al., 2013; Stacey et al., 2017). Malheureusement, en pratique, ces préférences sont rarement prises en compte dans les recommandations de pratique cliniques (Murphy, 2008), alors même que leur importance dans les politiques publiques de santé est grandissante (Härter et al., 2017).

En France, la nouvelle Stratégie Nationale de Santé (Ministère des Solidarités et de la Santé, 2017) confirme la volonté du décideur public de développer des structures alternatives à l'hôpital afin de répondre à la demande croissante de soins et de réduire les coûts jugés trop élevés des plateaux techniques hospitaliers. En cela, l'hospitalisation à domicile, ainsi que les structures de proximité telles que les maisons de santé pluridisciplinaires, constituent des alternatives intéressantes. Toutefois, bien que l'hospitalisation à domicile existe depuis de nombreuses années dans notre pays, ce type de prise en charge reste très peu développé : il ne représente que 1% des chimiothérapies réalisées et seulement 4 % des journées d'hospitalisations complètes toutes pathologies confondues (DREES, 2017a). En ce qui concerne les structures de proximité (SP), leurs développements permettraient de répondre à la critique souvent faite au système de santé français d'être trop hospitalo-centré.

Les préférences des patients relatives à ces différentes options de prise en charge n'ont été jusqu'alors que peu étudiées bien que les soins à domicile puissent être perçus comme très intrusifs par le patient et sa famille, limitant de fait le recours à ce type de prise en charge. De plus la non-adhésion du patient et de ses proches peut être génératrice de stress et engendrer des retours précoces et/ou non programmés à l'hôpital, de fait délétères tant pour le patient et ses proches que pour la collectivité.

Préférences des patients pour différentes options de prise en charge en cancérologie

Afin d'étudier la question des préférences des patients relatives à ces différents lieux de prise en charge en cancérologie, nous avons développé un outil d'information et d'aide à la décision en étroite collaboration avec des cliniciens et des patients atteints de cancer (Elwyn et al., 2006). Les outils d'information et d'aide à la décision ont pour objectif de fournir aux patients une information de qualité afin de favoriser la révélation de leurs préférences et leurs implications dans le processus de prise de décision.

Des patients atteints de cancer ont été recrutés dans trois établissements de la Région Rhône-Alpes (n=386). L'enquête s'est déroulée sur une tablette tactile contenant l'outil d'information et d'aide à la décision. Cet outil fournissait aux patients de l'information sur les trois options de prise en charge : l'hôpital, le domicile et la structure de proximité. Plusieurs questionnaires ont été également inclus afin de collecter : les caractéristiques sociodémographiques des répondants, leurs préférences et les raisons de ces préférences.

Plus de deux tiers des patients ont exprimé une préférence pour une prise en charge à l'hôpital (71 %) et un quart pour une prise en charge à domicile (24%). Seuls 5% d'entre eux ont exprimé une préférence pour une prise en charge au sein d'une structure de proximité. Afin d'étudier les raisons de ces préférences, nous avons réalisé une analyse multivariée. Compte-tenu du faible nombre de patients ayant exprimé une préférence pour la structure de proximité (n=19), nous avons dû regrouper le domicile et la SP.

Les raisons les plus discriminantes pour expliquer la préférence d'une prise en charge au domicile ou en structure de proximité versus une prise en charge à l'hôpital ont été : la volonté d'éviter les déplacements, vouloir préserver son style de vie et trouver l'hôpital angoissant, qui augmentaient la probabilité d'avoir une préférence pour une structure

alternative à l'hôpital. Au contraire, la préférence pour l'hôpital augmentait avec le souhait de vouloir séparer son lieu de vie de son lieu de soins et éviter d'être une charge pour ses proches.

Les variables sociodémographiques, ainsi que celles relatives à l'expérience des soins, n'influençaient pas les préférences malgré le fait que nous avons redressé notre échantillon afin d'avoir un nombre suffisant de patients (24%) avec une expérience des soins à domicile autre que pour des soins de suite de chirurgie.

En outre, la sécurité perçue n'a eu un impact que limité sur les préférences : penser que l'hôpital est plus sûr que la structure de proximité augmentait la probabilité de préférer une prise en charge à l'hôpital, mais penser qu'il est plus sûr que le domicile n'a pas montré un impact significatif.

Dans un contexte qui, d'une part, incite à prendre davantage en compte les préférences des usagers et qui, d'autre part, incite à développer l'évaluation économique des programmes de santé, l'analyse coût-bénéfice peut constituer un outil intéressant.

Evaluation contingente et préférences en population générale

La particularité de l'analyse coût-bénéfice réside dans le fait que les résultats des interventions sont exprimés en unité monétaire. Pour permettre cette monétarisation des résultats, la méthode la plus couramment utilisée est l'évaluation contingente. Cette méthode puise ses fondements dans l'économie du bien-être (*Welfare economics*) qui considère que le marché est un parfait révélateur des préférences individuelles (Gafni, 1998, 1991; O'Brien and Gafni, 1996). Ces dernières, quelles qu'elles soient, peuvent être exprimées par des consentements à payer et à recevoir. L'évaluation contingente consiste donc à évaluer la désirabilité d'un bien ou d'un service en obtenant des informations sur les préférences des agents économiques par des enquêtes qui visent à mesurer leur disposition à payer pour bénéficier du bien/service évalué. Toutefois, bien que l'évaluation contingente ait été développée pour estimer la valeur d'option qui concerne la valeur accordée à un usage potentiel d'un bien, donc en population générale, elle est, en santé, le plus souvent utilisée pour évaluer sa valeur d'usage (Smith and Sach, 2010a). Or, dans un système de santé financé collectivement, interroger des patients au moment de la consommation du

bien/service ne semble pas pertinent. Nous avons donc réalisé une évaluation contingente, intégrée à notre outil d'information et d'aide à la décision, afin de tester l'acceptabilité et la validité de cette méthode dans un contexte d'estimation de la valeur d'option.

Notre évaluation contingente a été conduite sur un échantillon représentatif de la population Rhône-alpine (n=800) via un site internet sécurisé après avoir pré-testée sa compréhension auprès d'un échantillon de convenance issu de la population générale. Nous avons développé trois scénarios de prise en charge, en étroite collaboration avec des cliniciens, allant d'une prise en charge curative à une prise en charge palliative. Pour chaque scénario, le répondant devait d'abord classer chaque option de prise en charge (hôpital, domicile, structure de proximité) de la plus préférée à la moins préférée, puis donner la force de sa préférence. Enfin, sa disposition à payer pour son option préférée était recueillie pour chaque scénario via une carte de paiement.

Nos résultats montrent que plus la prise en charge est lourde, plus la proportion de répondants préférant une prise en charge hospitalière augmentait. Pour le scénario le plus léger, incluant uniquement une chimiothérapie mensuelle courte (moins d'une heure) sur une période allant de 6 à 12 mois, le domicile était l'option préférée pour près de la moitié des répondants (46%), suivi par l'hôpital (35%) et la structure de proximité (19%). Pour le scénario palliatif, l'hôpital était l'option préférée pour la moitié des répondants (49%), suivi du domicile (30%) et de la structure de proximité (21%).

Des analyses multivariées nous ont ensuite permis d'étudier les déterminants des préférences. Comme attendu, plus une option était considérée comme sûre, plus cela augmentait sa probabilité d'être choisie comme option préférée. Cette variable était significative pour tous les scénarios ($p < 0.001$). De plus, la probabilité d'avoir une préférence pour l'hôpital augmentait avec le fait de vouloir séparer lieu de soins et domicile et penser que le domicile n'était pas adapté pour des soins, quel que soit le scénario ($p < 0.05$). En revanche, la probabilité d'avoir une préférence pour le domicile augmentait avec le fait de vouloir éviter de rencontrer d'autres patients dans le cas des deux scénarios les plus légers ($p < 0.05$), vouloir éviter les temps d'attentes (pour tous les scénarios $p < 0.05$) et penser que sa famille peut s'occuper de soi, dans le cas des deux scénarios les plus lourds ($p < 0.05$). Enfin, ne pas vouloir être un fardeau pour ses proches augmentait la probabilité de préférer

l'hôpital pour les scénarios les plus lourds ($p < 0.05$). Aucune variable sociodémographique n'était significative. De plus, les préférences pour la structure de proximité étaient moins bien définies que celles pour le domicile. De même, pour le scénario le plus lourd, les préférences semblaient également moins bien définies que pour les scénarios les plus légers.

Après cet exercice de révélation des préférences, chaque répondant devait donner sa disposition à payer (DAP) pour bénéficier de son choix préféré, à l'exception de ceux qui préféraient l'hôpital puisque qu'il était considéré comme notre option par défaut. En effet, notre objectif était d'estimer combien la population générale serait prête à payer pour bénéficier d'options de prise en charge supplémentaires, en considérant que l'hôpital serait toujours disponible. Le faible taux de réponses protestataires (inférieur à 8 % quel que soit le scénario), ainsi que d'outliers (un outlier par scénario au maximum) suggère une bonne acceptabilité de la méthode d'évaluation contingente en population générale. La DAP moyenne tend à s'accroître avec la lourdeur de la prise en charge (pour le domicile : $DAP_{S1domicile} = 15.7\text{€}$ /par foyer par mois, $DAP_{S2domicile} = 17.0\text{€}$, $DAP_{S3domicile} = 19.1\text{€}$; pour les structures de proximité : $DAP_{S1SP} = 13.9\text{€}$, $DAP_{S2SP} = 16.1\text{€}$, $DAP_{S3SP} = 17.6\text{€}$). Bien que cette augmentation semble modeste, les répondants restent sensibles à l'évolution des scénarios proposés ($p < 0.001$), autant pour une prise en charge à domicile que dans une structure de proximité. Néanmoins, cela ne peut exclure totalement la présence d'un possible effet d'ordre sur l'estimation des DAPs. De plus, l'analyse multivariée des DAP démontre une corrélation entre le revenu et la force des préférences, ce qui semble confirmer la validité des DAP. Cependant, nos résultats montrent que les DAP n'étaient pas corrélées à la perception du risque de cancer, ni au nombre de personnes composant le foyer.

Nous avons également testé l'apport de l'ajout d'une question mesurant le degré de certitude du répondant sur sa DAP (question *Follow-up*) afin de réduire le biais lié à une situation hypothétique. Cette question présentait une échelle visuelle analogique allant de 0, très incertain, à 10, certain. Ces mesures, bien que courantes, sont généralement faites avec des questions dichotomiques, mais non après une carte de paiement. Les résultats de l'apport de la mesure de certitude des DAP sont mitigés : bien que la qualité de l'ajustement des analyses multivariées semble légèrement améliorée, nous perdons 30% de nos effectifs.

De plus, les résultats ne vont pas dans le sens attendu. En effet, il est généralement admis que les méthodes de réduction du biais hypothétique diminuent la DAP moyenne, ce qui n'est pas le cas dans notre étude. Cependant, (i) en pratique la diminution de la DAP moyenne est dépendante de la façon dont vont être considérées les réponses incertaines (Shaikh et al., 2007) (ii) l'étude de Blumenschein et al., (2008) et celle plus récente de Shackley and Dixon (2014) montre une tendance à l'augmentation de la DAP chez les personnes certaines ce qui tend à confirmer nos résultats.

Comparaison des préférences des patients et de la population générale

Enfin, la dernière partie de notre travail visait à comparer les préférences de la population générale (n=1001) à celle des patients (n=386) en se basant sur les données obtenues dans nos deux enquêtes. L'un des risques liés à l'estimation de la valeur d'option (population générale) d'un bien ou d'une intervention est de ne pas anticiper correctement ce que seront les préférences en situation d'usage (patient) et ainsi risquer de ne pas apporter d'informations fiables aux décideurs pour leur prise de décision.

L'outil utilisé pour les deux populations était identique, seul le mode de passation de l'enquête différait. L'hôpital était l'option préférée pour nos deux populations. Cependant, les proportions étaient très différentes. En effet, si 71% des patients déclaraient préférer l'hôpital, ils étaient seulement 43% pour la population générale, suivi du domicile avec 24% des patients et 39% pour la population générale et la structure de proximité avec respectivement 5% des patients et 19% de la population générale.

Nous avons réalisé des analyses multivariées ajustant les préférences sur les caractéristiques sociodémographiques et l'expérience des soins. Ces analyses mettent en lumière plusieurs résultats intéressants : Toutes choses égales par ailleurs, la population générale a une probabilité de préférer une structure alternative (domicile ou structure de proximité) 2,4 fois supérieure aux patients (estimation Logit binaire). Dans le modèle ordonné prenant en compte l'intégralité du classement des préférences, la probabilité de classer le domicile avant l'hôpital est multipliée par un facteur de 1.4 dans la population générale par rapport aux patients et celle de classer la structure de proximité devant l'hôpital par un facteur de 2.4.

Conclusion

Même si la proportion de répondants ayant une préférence pour l'hôpital est élevée au regard des préférences, le niveau de développement actuelle des structures alternatives est largement inférieur à ce qu'il pourrait être. Ces résultats semblent indiquer que les freins au développement de structures alternatives ne se situent pas du côté des patients, mais plutôt du côté des offreurs de soins. Parmi les facteurs pouvant potentiellement expliquer le faible niveau de développement de ces structures, en particulier de l'hospitalisation à domicile, qui rappelons le, existe déjà depuis de nombreuses années dans notre pays, il serait intéressant d'étudier les coûts de chaque option de prise en charge. En effet, même s'il est généralement admis que le coût de l'hospitalisation à domicile est inférieur au coût d'une hospitalisation conventionnelle, les études le démontrant sont très peu nombreuses et n'apportent que des éléments limités puisque les coûts peuvent être très hétérogènes notamment en fonction de la charge de soins du malade (Buthion, 2015; IGAS, 2010). De plus, les coûts dépendent de la perspective choisie, il n'est pas certain qu'un établissement hospitalier ait intérêt à faire sortir le patient en hospitalisation à domicile (HAD). De plus, l'HAD nécessite souvent l'implication de soignants de ville (médecins, infirmiers). Or, ceux-ci ne sont pas nécessairement disponibles et ou disposés à prendre en charge des patients qui peuvent être lourds. La possibilité de prendre en charge un patient en HAD est donc contrainte par l'offre locale de soignants qui peut être variable en fonction du lieu d'habitation du patient. Enfin, des contraintes techniques peuvent également être à l'origine du faible niveau de développement de l'HAD, par exemple les contraintes liées à la conservation des traitements.

Concernant le développement des structures de proximité, principalement les maisons de santé pluridisciplinaires, bien que celles-ci se développent fortement (DGOS, 2015), elles sont encore très méconnues ce qui peut expliquer la difficulté des répondants à se projeter. Pour le moment, elles n'ont pas pour mission de prendre en charge les patients atteints de cancer. Cependant, compte-tenu du développement des maladies chroniques, elles pourraient à l'avenir devenir essentielle et contribuer plus largement à l'offre de soins.

La méthode de l'évaluation contingente est encore largement débattue (Baker et al., 2010; Smith and Sach, 2010a, 2010b, 2009). Cependant, son mésusage pourrait expliquer en partie les interrogations soulevées par cette méthode. En effet, bien qu'elle ait été développée pour évaluer la valeur d'option d'un bien/service, elle est en santé majoritairement utilisée pour en estimer sa valeur d'usage sur une population de patients. Or, cela ne correspond pas à la façon dont sont financés la majorité des systèmes dans lesquels elle est utilisée. Si l'objectif de ces études, est une simple mesure des préférences des patients, pourquoi introduire la notion d'unité monétaire qui impose nécessairement la question de la contrainte budgétaire et peut engendrer des réponses protestataires ? Si les potentialités de l'ACB et de l'évaluation contingente ne sont pas exploitées, son avantage sur d'autres méthodes de mesure de préférences, comme une simple échelle visuelle analogique par exemple, pose question. En revanche, si l'objectif est de réaliser une ACB dans le cadre d'une évaluation économique, cette méthode peut être un complément intéressant aux analyses coût-efficacité et coût-utilité. En effet, nos résultats bien que présentant certaines limites sont globalement cohérents. Enfin, comme toutes méthodes s'intéressant à la mesure des préférences des usagers, nos résultats sont à considérer au regard du cadre méthodologique dans lequel l'étude a été réalisée.

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2 Introduction

Specific features of goods/services in healthcare are known to lead to market inefficiencies. Uncertainty and information asymmetry have been pointed out by Arrow (1963) as two major characteristics of healthcare market, sources of market failure. Uncertainty is related to the fact that patients do not know their disease risk, the severity of the disease, the effectiveness of treatments. Information asymmetry is related to the fact that physicians hold the expert knowledge concerning notably benefits and risks of treatment, and patients are seen as laypersons who delegate decision-making to physicians. It is thus very difficult for them to evaluate the quality of healthcare services as usually proposed in market place. In such a context, consumer's sovereignty is putted into question and physicians are more seen as perfect agents for the patients, ie. patient delegates authority to his doctor to make medical decisions, and thus the challenge is to encourage physicians to find out patient's preferences (Gafni, 1998). Information asymmetry thus fall short economic models based on independency between supply and demand. Moreover, in a fee-for-service healthcare system, information asymmetry can lead physicians to induce demand (Evans, 1974).

Rationality assumption is also putted into question in healthcare since the majority of patients tend to underestimate their risks and do not adopt preventive behaviors preferring short-term prospects (consumer's myopia), thus leading to a suboptimal insurance level.

Finally, externality (positive and negative) is a major component of good/service in healthcare. Consumer's behavior could influence his own utility function, but also those of other as it is the case in vaccination for instance.

All these characteristics lead to market failure and justify the intervention of healthcare regulator, particularly to control the offer and prices, but also to ensure an optimal insurance coverage.

Over the past decade, healthcare systems in western countries have to deal with an increasing budget pressure (OECD, 2017). In France, despite the recent slowdown of healthcare expenditures, its increase was of 2% in 2016, whereas the Gross Domestic Product increased by 1,6% the same year (DREES, 2017b). Demographic factors, in particular ageing and increase of the population, explain half of this increase, change in behavior and

practice, in particular innovation, explain the second half. Innovation in healthcare like in other fields follows the law of decreasing returns. Recently, an article entitled “Cancer drugs: high price, uncertain value” (Cohen, 2017) illustrated this issue in cancer where treatments are more and more expensive whereas their effectiveness is more and more low.

To improve the allocation resource efficiency, economic evaluations have been proposed and are expanding since the 2000s (Drummond et al., 2015). In France, since 2012, under certain conditions, pharmaceutical industries are required to provide in the reimbursement demand an economic evaluation of the drug or medical device they propose (HAS, 2013).

The aim of economic evaluation is to provide information on the opportunity cost of an investment. Economic evaluation estimates the efficiency of a strategy to help decision maker to invest or not. Several types of economics evaluations exist: Cost-Effectiveness Analysis (CEA), Cost-Utility Analysis (CUA) and Cost Benefit Analysis (CBA). Whatever the type of analysis, an economic evaluation always compares at least two strategies in terms of costs and outcomes or consequences. However, the outcomes measurement varies depending on the type of analysis. For CEA, it is a physical unit specific to the pathology. For CUA the outcome is measured with a unique criterion combining both survival and quality of life called the QALY (Quality Life Years), and for CBA the outcome is measured in monetary terms.

CBA has three main characteristics which can be seen as advantages (Olsen & Smith, 2001); (i) CBA is based on Welfare economics which consider that individuals are the best judges of their own welfare. The given value of an outcome is provided by consumers rather than by decision makers since the monetary value of the outcome is obtained using a contingent valuation survey that collect consumers’ willingness to pay to benefit from the good or service assessed. (ii) Because of the monetarization of the outcome, CBA allows to integrate criteria related to potential use of the good or service and its externalities, and not only on the use value (iii) outcomes are expressed in the same unit as the cost which allow to assess the net benefit from the good/service.

Unfortunately, less than 24 % of CBA studied the option value and few have developed a complete CBA. The majority of studies estimated only the monetary outcome and interviewed patients and not the general population (Smith and Sach, 2010a). Such results underline the misuse and the under development of CBA and CV surveys in economic

evaluation. However, as previously mentioned, in CBA, individual's preference is a central concern and especially in healthcare. Interestingly, since the early 2000s, healthcare consumers, particularly patients with chronic diseases, more and more express their wish to be informed and to participate in decisions concerning their health, underlining the need to elicit their preferences (Sculpher et al., 2002). In the same time and paradoxically, only 6 % of clinical practice guidelines integrate patient's preference as a criterion in the medical decision-making process (Golan et al., 2011; Murphy, 2008). This paradox is reinforced when we know that patient's preferences is recognized as a key component of clinical decision-making process since the early 2000s (Haynes et al., 2002) and even further as key element to improve the quality of healthcare systems (Härter et al., 2017).

It is in this context that our PhD thesis aims to analyze patients' and the general population's preferences in the specific situation of home care and proximity structures versus hospital in cancer. We chose this applied area because home care and proximity structures are growing in France under the pressure of both innovations, encouraging ambulatory care, and crowded hospitals often presented as too expensive and located around big cities making them difficult to access to some patients. French decision makers thus want to develop these alternative structures underlying that they respond to healthcare consumers' demand and that they are cost saving (HAS, 2015), without necessarily providing outcomes based on rigorous evaluations (Buthion, 2014; IGAS, 2010). We thus thought that this change in healthcare organization concerning a disease with an increasing incidence (INCA, 2017, 2015) and the quasi absence of evaluations taking into account healthcare consumers' preferences was a topic particularly interesting to study in the framework of CBA.

Our PhD thesis is organized into four chapters:

Chapter 1, based on a literature review, presents CBA and the last methodological outcomes in the field. These outcomes helped us to choose the method we tested in the CV survey that we conducted.

Chapter 2 addresses cancer patients' preferences for home care and proximity structures versus hospital and their determinants, ie. patients' socio-demographics

characteristics, experience of care, perception of these structures etc. To allow cancer patients' to reveal their preferences and the reasons of these preferences, we developed a decision aid on a touch pad that we administrated in three hospitals located in the Rhône-Alps Region. We asked patients to declare their preferences for each of the 3 options and to give their strength of preference for each option using Visual Analog Scales (VAS).

Chapter 3 analyses the contribution of a CV survey (*Willingness To Pay, WTP*) integrated in the decision aid developed in Chapter 2, to allow the general population to declare her preferences for home care and proximity structures versus hospital care in cancer. As mentioned before, the majority of CV surveys is conducted among patients. However, in the French healthcare system, three quarter of health expenditures are collectively funded, thus asking patients their WTP is not relevant, the payment of care does not occur at the point of consumption. In such a context, asking patients their WTP could generate a high rate of protest responses, patients declaring that it is unacceptable to ask them such a question at this this moment of consumption. We thus wanted to use one of the main advantages of CBA to estimate the option value of home care and proximity structures.

In this chapter, we aimed to test the acceptability and validity of the CV method in the French general population. More precisely, we wanted to study : 1. The acceptability of the CV method studying protest responses and their determinants; 2. The validity of WTP based on key variables like individual's income, perception of cancer risk, strength of preferences; 3. The methodological relevance of (i) the *follow-up* question, a scale to measure the degree of respondent's certainty on his WTP after the payment card and (ii) the *cheap talk* added in the introduction of the WTP survey to inform individual's that their responses are important and that they need to express their true preferences keeping in mind that even if the study is hypothetical, their WTP should be based on their real budget constraint.

This chapter presents the web-based CV survey conducted by a national institute survey among a representative sample of the Rhône-Alps Region. We collected individuals' preferences for three scenarios of cancer treatments, from curative to palliative care. Respondent has to indicate his first preference with a ranking of options (home, PS,

hospital), and then to indicate the strength of his preference with a VAS. Finally, he has to indicate his WTP to benefit from his preferred option.

Finally, Chapter 4 aims to provide information to healthcare decision makers on the allocative efficiency of an intervention. A major risk of CV method to elicit option value in the general population is that general population's preferences could not be a good predictor of patients' preferences. We thus compared healthcare consumers' preferences (comparison between patients' preferences and the general population's preferences) depending on their experience of care to evaluate the predictive value of the CV method.

3 Chapter 1 : Theoretical framework

3.1 Introduction:

Economics evaluations differ by the unit used to measure the outcome of the interventions evaluated. In the cost minimization analysis (CMA) the effectiveness is considered as equivalent. Thus, CMA only compares the costs of the options. CEA has a unidimensional criterion, generally specific to the pathology, for example the number of hypoglycemia, blood pressure reduction, survival, whereas CUA has the advantage to combine both survival and utility. The concept of utility in economics refers to individual's preferences for a good or a service. It is the subjective satisfaction obtained from an outcome, which means that for the same outcome or for a given level of health status, the level of utility or quality of life could be different among individuals. The most commonly used measure is the Quality Adjusted Life Years (QALY), where the length of time is adjusted by a utility coefficient ranged from 0, death, to 1 perfect health. Finally, in the CBA, the health outcome is measured in monetary terms, thus costs and effectiveness are measured in the same unit.

In the first guidelines on economic evaluations (Drummond, 1985), CMA was considered as a distinct type of economics evaluation, where the effectiveness between options was considered as equivalent. CMA was thus recommended when clinical trials already showed that there was no statistically significant difference between the effectiveness of the options. More recently, some authors argued that using CMA could bias the economic evaluation due to the uncertainty on effectiveness (Briggs and O'Brien, 2001; Dakin and Wordsworth, 2013). These authors declared "the death of cost-minimization analysis" and recommended to always conduct a CEA to take into account the uncertainty around estimation. CEA is interesting when the evaluated interventions have only one specific impact on the pathology. Unfortunately, this specificity is also one of the main limitation of the CEA: It is difficult to compare strategies among different options due to the lack of a common outcome criterion. For this reason, the use of CUA is sometimes helpful. Contrary to CEA, CUA combines both survival and utility in a unique criterion. This generic outcome has the advantage to allow comparisons across different healthcare options. Today, French

authorities recommend the use of CUA and CEA can also be used if it is not possible to do a CUA, but this choice has to be justified (HAS, 2011).

Contrary to CUA and CEA, CBA is not recommended despite its advantages. Because CBA converts benefits in monetary terms, it has the advantage to allow comparisons across programs in different pathologies and even more generally across different fields, like environment or transportation for examples (Drummond et al., 2015). The question asked by CBA is whether the benefits of the program exceed the cost? CBA provides information on the social net benefit of a program, whereas, both CEA and CUA provide information on the relative benefits of a program and assume that one of the compared option must be undertaken regardless of its net benefits. Indeed, CEA and CUA value how much we need to pay to achieve a particular goal under budget constraint, but do not provide information on the societal opportunity cost of the program. It is thus necessary to use external criteria, like cost per QALY, league tables or threshold cost-effectiveness ratios, to assess the desirability, the cost-opportunity or more generally, if it is worthwhile to do the program or not. Nevertheless, these thresholds are often arbitrary. Regardless the type of analysis, a monetary valuation of health outcomes is necessary to make a decision. For this reason, some authors consider that all types of analysis are equivalent. However, the theoretical foundations of CBA are different from the ones of CEA and CUA.

CBA is based on Welfare economics, a normative theory which assess the consequences of a policy change and judges the desirability of change. According to Boadway and Bruce (1984), Welfare economics can be "viewed as an investigation of methods obtaining a social ordering over alternative possible state of the world". The theoretical foundations of Welfare economics are due to Pareto (1896), Hicks (1943, 1939) and Kaldor (1939). This theory establishes a tool for a social decision based on individual preferences. In welfare economics, the market allows to reveal individual preferences. These preferences are expressed by willingness to pay. The willingness to pay and the willingness to receive equalization provides in principle the market price. Welfare economics is based on three fundamental principles stated by Culyer, (1991): (i) the function of social well-being is a function of individual utilities. In other words, the collective utility is obtained by summing individual utilities (ii) the individual utility functions are a function of goods and services

consumed by each individual. Each individual maximizes his utility function under budget constraint (iii) individuals are the best judges of their own welfare (consumer's sovereignty). The economic value of a policy is measured by the change in well-being generated by a variation of the studied program. There are several methods for estimating the welfare change: consumer surplus (CS), equivalent variation (EV), and compensating variation (CV). CS is derived from Marshallian/ordinary demand curve, while the others are derived from the Hicksian demand functions/income-compensated demand functions. According to Marshall (1924), the CS is defined as the difference between the maximum amount a consumer is willing to pay for a given quantity of goods and the amount actually paid. Hicks (1941) contested the interest of the "Marshallian surplus." Indeed, Marshall's definition of surplus assumes a constant income and therefore does not take into account the income effect, in other words Marshall assumed that the marginal utility is constant. According to Hicks, an adequate measure of well-being should assume that the extent of the surplus is done at a constant value and not at a constant income. Hicks (1941, 1943, 1956) proposed several methods for the consumer surplus. The EV takes the final utility as reference point. In a context of an increase of prices, it measures the maximum amount that the agent is willing to pay to avoid this price increase. The CV takes as reference point the initial utility of the agent. In the context of an increase of prices, the CV is the amount that the agent will have to pay to be indifferent between the new situation and the old one.

The construction of the collective utility function has been extensively debated in the literature. Arrow (1951), in his theorem of impossibility, which is an extension of the «Condorcet paradox» demonstrated that it is impossible to construct an ordinal aggregate utility function which respects four criteria: unrestricted domain, non-dictatorship, Pareto efficiency and independence of irrelevant alternatives. However, a solution has been developed by Black 1948 who introduced the notion of unimodality of preference according to which it is possible to construct a social utility function which is a total pre-order in releasing the unrestricted domain criteria.

To assess the acceptability of a public policy, two criteria are used in welfare economics:

Pareto Criterion (1896, Course in Political Economy): a policy is acceptable if it improves the well-being of at least one person, without worsening the situation of the others. This

extremely restrictive condition has been criticized for its lack of realism, reality usually involving winners and losers.

Kaldor-Hicks criterion: a potential Pareto improvement

The Kaldor-Hicks criterion introduces the concept of compensation. A public policy could be judged as a social progress, if the winners are able to offer compensation to the losers. In other words, B is preferred to A if those who win can hypothetically compensate those who lose while remaining in a better situation than those who are in situation A. This criterion raises the question of equity between winners and losers. It is possible that a situation is acceptable according to Kaldor-Hicks criterion, although there is a small part of the population who has a gain and a majority who has a loss.

The major point of CBA is how to express health outcomes in monetary values. Three methods can be used: the human capital, the revealed preferences and the stated preferences also called contingent valuation.

The human capital method values the benefit of a program by the number of workdays lost because the individual is sick. The health care program is viewed as an investment in human capital. The healthy time produced by the policy is valued using the individual's wage which is theoretically related to his productivity. However, the human capital method raises the issue about the value of individual who are not in the labor market, like retired or homemakers. Moreover, this method is not conformed to welfare economics because it is not based on individual preferences.

The revealed preferences method is based on observation of relationships between risky jobs in healthcare and wages which must be offered to the individual who accept to take risks. Although this method is in line with Welfare economics principles, it is too specific to a job to be generalizable.

The contingent valuation method CVM provides a survey-based method for estimating the monetary benefits of non-marketed goods and services (Bateman et al., 2002; Mitchell and Carson, 1989).

3.2 Contingent valuation method (CVM)

Initially developed in the environmental field in the 1960s,(Arrow et al., 1993; Mitchell and Carson, 1989), CVM has been applied in the health area since the 1990s (Diener et al., 1998; Donaldson and Shackley, 1997; Klose, 1999; O'Brien and Gafni, 1996). CVM has the advantage to consider not only health outcomes, but also other dimensions as process utility or option value which is the value according to a potential use of health care and externalities (Olsen and Smith, 2001; Smith, 2007). For these reasons, CVM is particularly interesting to assess healthcare programs which not only impact health care results, but also healthcare consumers' satisfaction.

The aim of CVM is to assess the desirability of a good or a service using a survey to collect consumers' preferences rather than using a direct observation of consumers' behavior on the market place. The interviewed persons express their preferences by choosing between two hypothetical situations or the actual situation and the hypothetical one. The aim is to collect the willingness to pay to obtain the good or service or the willingness to accept to give up the good/service. Indeed, the theoretical foundations of CVM is Welfare economics, which considers that the market is a perfect indicator of individual preferences through WTP and WTA (Gafni, 1998, 1991; O'Brien and Gafni, 1996) and that the equalization of the WTP and WPA provides the market price.

The first methodological guidelines about CVM have been published in the environmental field by the NOAA (the National Oceanic and Atmospheric Administration) expert panel, (Arrow et al., 1993). Their aim was to estimate the environmental damages caused by the spill of more than 11 million gallons of crude oil due to the sinking of the oil tanker Exxon Valdez into Alaska in 1989. However, the relevance of these recommendations in healthcare is questioning. Consequently, lots of researches aim to establish recommendations in this field. Thus, alongside extensive empirical studies, CVM is the subject of increasing methodological studies to determine the optimal method to collect the WTP and to avoid bias. To make a point on the CVM methodological advances, we conducted a literature review.

3.2.1 *Literature review: Methods*

Search strategy : All search results were limited to the years 2008-2014 as a literature review related to articles published previously had been conducted by Smith and Sach (2010a).

In June 2014, we conducted our search using four electronic international bibliographic databases: Pubmed, Science direct, Business Source Complete and Econlit plus one French public health database (BDSP) 2014. These databases are complementary and covered all fields of application of CV method. Our aim was to draw a state of the art of CV method in health, but also in other fields which are often ahead on CV like environmental economics.

Pubmed database allows to obtain publications in health area, Business Source Complete and Econlit are more related to economics and marketing, whereas Science Direct, is a general database in social sciences and covers many fields ranging from health to environment and transportation. The BDSP database allows to collect data on CV applications in the French context.

To take into account the particularity of each database, the search equation was adapted to each of them. A small number of key words was used in combination: contingent valuation, willingness to pay, willingness to accept, and a restriction has been put on the terms 'cost-utility' and 'cost-effectiveness'. The search equation has been voluntary large in first intention to obtain all publications on CV method. The Pubmed equation search was used as the "basis" and adapted to other databases: ("contingent valuation" OR "willingness to pay" OR "willingness to accept") and (NOT "cost-utility" OR NOT "cost-effectiveness"). In addition, key authors were identified from this research and used as additional search terms in these databases, but also on their personal websites or on the website of their universities/labs. The literature review was completed by screening references to selected articles. Since June 2014, alerts have been created on each database to update the literature review more easily.

Selection of eligible articles: All references were imported on a software tool for publishing and managing bibliographies, Zotero®, to detect the duplicates. A first reviewer (JM) studied by titles and abstracts, all references identified in the literature search to make a first large selection.

Articles were included in this first step if they were published in English or in French, if the abstract was available, and if a methodological issue concerning CV was addressed or if the publication was on the debate around CV. All types of articles could be included (books, articles published in a peer reviewed journal, editorials, working papers), the abstract concerning oral presentations were identified and turned aside in this first step. Articles that report results of CV studies without addressing methodological issues were excluded as well as studies comparing WTA and WTP.

After this first round, a second reading by two independent reviewers (JM and NM) has been made. An analytic grid was constructed to distinguish between the articles concerning the general debate about CV and the methodological articles. The aim was to refine the selection and classify the abstracts according to the question addressed. Each reviewer could indicate in the analytic grid: methodological points analyzed (generality around CV method, elicitation format, framing effect, scope effect, payment vehicle, mitigation method of hypothetical bias), the purpose of the article and the context (environment, health, transport, marketing, others). Disagreements between reviewers were solved by consensus. Information extraction: Finally, the full texts of the included abstracts have been read by the first reviewer (JM). Data were extracted using a predefined data extraction form. Methodological issues, study design, population characteristics, statistical analysis, outcome and limitations were documented. Figure 1 presents the literature process based on the PRISMA method (Liberati et al., 2009).

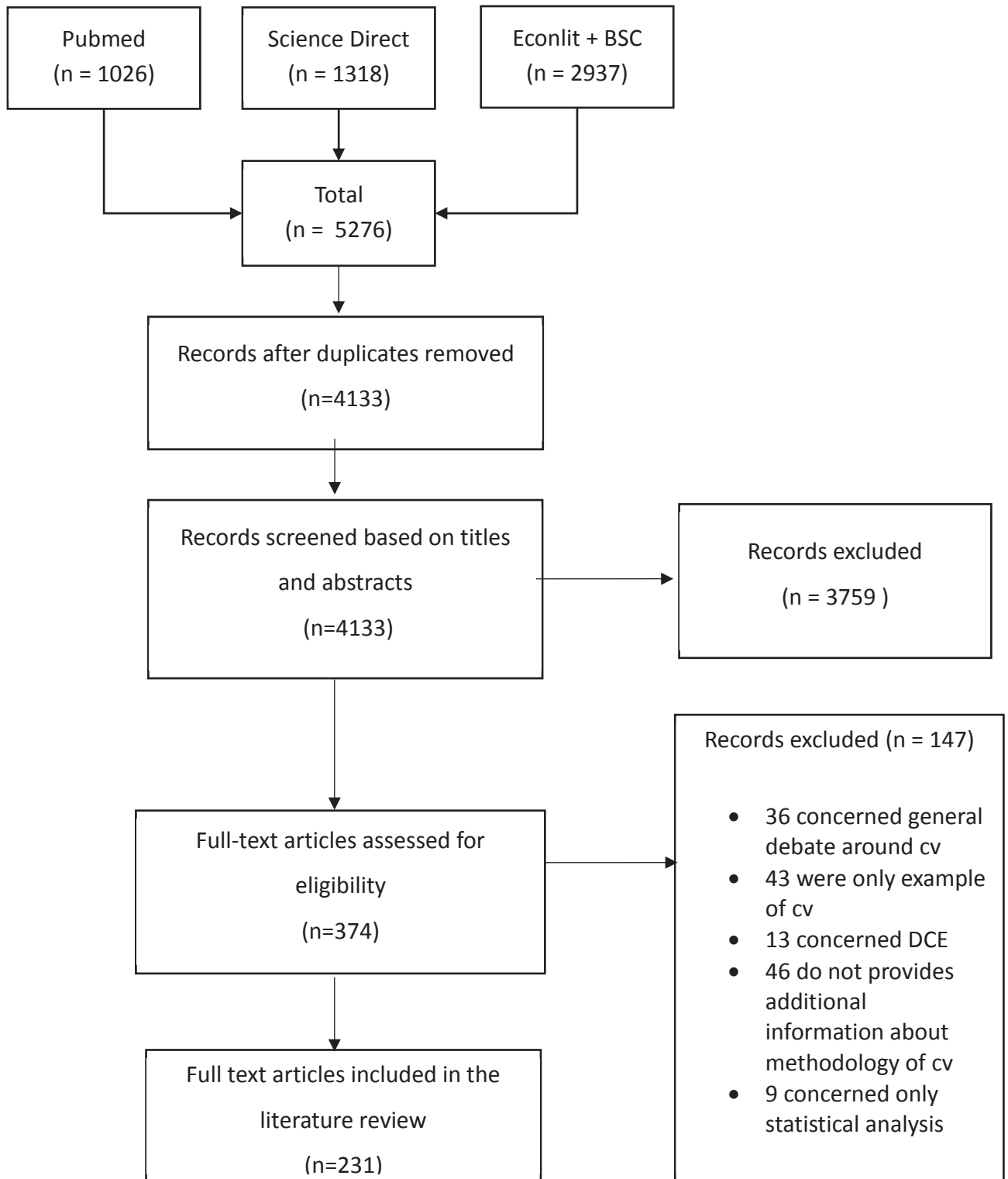


Figure 1 : Flow of information through the different phases of the literature review

3.2.2 Results :

We chose to present only the most relevant methodological points related to our thesis: elicitation format of WTP, methods to mitigate hypothetical bias: such as *follow-up* and *cheap talk*, framing effect, payment vehicle choice. The presentation of the literature review is thus focused on these points.

a) *Elicitation format*

The elicitation format of WTP refers to how the question is asked. This choice is central and highly debated over the twenty last years since it could influence the result of CV survey (Bateman et al., 2008; Frew et al., 2004; Olsen et al., 2012). Numerous methods have been developed, but none seems to be consensual, each has its pros and cons. Each elicitation format leads to a different construction process of WTP (Hoehn and Randall, 1987) and provides different types of information and thus different estimations of the WTP (Cameron et al., 2002; Carson and Groves, 2011). Nonetheless, we could classify the elicitation methods into four main categories even if many variants of each exist:

- *Open ended question*: this method consists in directly asking individuals their maximum willingness to pay for the good or service without providing any monetary reference. Generally, the question is: “*How much are you willing to pay to get the good/service X?*”
- *Closed ended question /dichotomous choice/discrete questions*: this elicitation format consists in asking a yes or no question. For example, “*Are you willing to pay X€ for the good or service X? Yes or no?*”
- *Bidding game or iterative methods*: these methods consist in proposing an initial amount of money and then increase it or decrease it depending on whether the respondent accept or reject the offer. The amount by which the bids are raised or lowered is pre-determined by an algorithm to ensure that each respondent participates at the same bidding process. The number of iterations can be fixed in advance or the process can go until the maximum WTP is reached.
- *Payment card/scale*: this method consists in presenting at the same time a series of monetary values. Respondents have to choose the amount that corresponds to their maximum willingness to pay in the proposed list of amounts.

From a theoretical point of view, the elicitation method of WTP might be assessed according to three criteria (Bateman et al., 2008):

(i) *Incentive compatibility*, defined as the one that gives individuals an incentive to respond truthfully. Indeed, some elicitation formats involve a strategic behavior. Because, the respondent wants to influence the investment choice or the amount of tax through his response, he could overestimate the WTP to be sure that the public good/service will be provided and then adopt a behavior of free riding. He can also underestimate his WTP if he thinks that the issue is the determination of the access cost. In both cases, the strategic behavior skew the elicitation of his true preference.

(ii) *Statistical efficiency*: the elicitation method must provide an accurate estimation of the WTP that is the maximum amount the individual is willing to pay.

(iii) *Procedural invariance*: The method used must ensure the reproducibility of the results and does not depend on data collection process.

Moreover, we can add the cognitive burden to these three criteria (DeShazo, 2002) meaning that the questionnaire to obtain the true WTP must not be too long and too difficult to understand.

We now present each method according to these 3 criteria.

- *The open-ended question*

The open-ended method is the easiest one to use. A pilot study to determine a reference amount is not needed. Thus, the anchoring or « yea-saying » biases do not exist (Kanninen, 1995). However, this elicitation method suffers from a strategic bias (no incentive compatibility) (Carson and Groves, 2007; Hoehn and Randall, 1987; Mitchell and Carson, 1989) because no amount of money is proposed. This could thus be interpreted by the respondent by a lack of fixed price. The individual could thus endorse a strategical behavior to influence the fixation of price (Arrow et al., 1993).

Moreover, the number of "no" responses is generally higher than in other elicitation methods and the number of extreme values too. This could be explained by the lack of reference point that makes difficult the WTP to estimate (Meyerhoff and Liebe, 2010) especially when respondents are not familiar with the good or the service studied.

According to Carson and Groves (2007), for a public good, respondents should know how much the good or service will cost to elicit their WTP because a lack of price could be perceived like nonsense : if a good or service has been studied, a price should be determined and announced. For these reasons, the open-ended method is not recommended (Arrow et al., 1993; Donaldson et al., 1997).

However, an alternative version of the open-ended has been proposed by Hakansson (2008) from the stance that individuals are generally unsure of their WTP. Individuals are asked to propose an interval of amounts rather than a unique amount, the interval reflecting uncertainty. This new version of the open-question has been shown to allow better responses rates.

- *Single Binary Discrete Choice (SBDC) / take it or leave it / referendum*

The single bounded dichotomous choice method has been first used by Bishop and Heberlein (1979). Respondents are asked with a yes or no question whether they would pay a specific amount for a given good or service. The bid amount varies across respondents and is randomly selected among a series of pre-determined amounts. The only information obtained from each respondent is whether his maximum WTP is above or below the bid offered (Bishop and Heberlein, 1979; Boyle et al., 1996, 1985). The aim of this method is to obtain an empirical construction of the WTP distribution in the studied population.

This method recommended by the NOAA Panel (Arrow et al 1993) is one of the most used. It is incentive compatible, easy to understand because it puts the respondent in a real situation like in a real market. Thus, the no responses rate is low. However, this method does not provide lots of information about respondent's preference for the good or service. It is not statistically efficient; hence it needs a very large sample to improve the accuracy of the WTP. Moreover, it could suffer from a « *yea-saying* » and from an anchoring bias because the estimation of the WTP could be influenced by the proposed amounts. A pre-test is thus necessary to determine the proposed amounts and avoid the anchoring bias. Finally, Carson and Groves (2007) question the incentive compatibility of the method. Indeed, according to them, the SBDC is incentive compatible when (i) there are only two alternatives compared, (ii) the good is a quasi-public good and (iii) the good or service is mandatory.

- Bidding game or Iterative methods

The bidding game has been introduced by Davis (1963). This method asks the respondent to enter into a bargaining process with the interviewer. Compared to SBDC, iterative methods seem to reduce the mean of WTP and increase the WTP precision (Alberini et al., 1997; Aprahamian et al., 2008; Bateman et al., 2001; Boyle et al., 1985; DeShazo, 2002; Flachaire and Hollard, 2006; Veronesi et al., 2011; Whitehead, 2002).

Among iterative methods there is the Double bounded dichotomous choice (DBDC)

The addition of a second dichotomous question improves the statistical efficiency of the method. However, this second question could generate a “*yea-saying*” bias (Cameron and Quiggin, 1994; Kanninen, 1995) since if the respondent has already responded no to the first question, he could be tempted to say yes to satisfy the interviewer even if his true preference is no. On the contrary, if the respondent responds yes to the first question, he could say no to the second amount because he thinks that this second issue is an over-evaluation of the investment needed to provide the good or service being assessed. Moreover, like SBDC, this method could suffer from an anchoring or from a starting point bias (Chien et al., 2005; Herriges and Shogren, 1996; Watson and Ryan, 2007), the WTP estimation could thus be correlated to the amount of the first bid.

- Bidding processes

In addition to improving statistical efficiency, bidding processes encourage the individual to think more about his preference and thus allow him to better estimate his WTP (Hoehn and Randall, 1987).

However, the majority of studies shows that iterative methods appear to suffer from an anchoring bias / first bid bias (Bhatia, 2005; Carson, 2012; Desvousges et al., 1987; Frew et al., 2004; McNamee et al., 2010; Stalhammar, 1996), i.e. a link between the first amount announced and the final amount of the WTP. For example, Olsen et al., (2012) showed in a study that aimed to measure the willingness to pay for a smoking cessation treatment using a referendum question, that the most important determinant of WTP was the initial bid more than the efficacy of the treatment. The mean of WTP was higher when the initial bid was higher. They concluded that the WTP could be easily manipulated. Several explanations

have been suggested concerning the anchoring bias. The main one is that the respondent associates the first amount as an approximation of the real price of the good/service.

Additionally, bidding methods could encourage respondents to adopt strategic behaviors and not to reveal their true WTP (Whitehead, 2002). According to DeShazo (2002), biases in respondent behavior in iterative methods could be explained by :

-The cost expectations model: the respondents perceive the initial bid as an approximation of the real cost of the good/service. A higher follow-up price could be perceived as an attempt by public authorities to acquire more money than is needed to cover the cost of good/service. On the contrary, a lower follow-up price could be a signal of an impaired quality of the good/service.

-The Anchoring/Starting point bias: responses to the follow-up question depend on the initial bid amount offered. The respondent perceives the initial bid as a signal of true cost of the good/service. Because, he is not sure, his WTP is based on the initial bid.

-The strategical Behavior model: respondents see the new bid amount as a signal of bargaining possibility. They suppose that the price is flexible and thus that they can bargain.

-*Yea-saying*: Respondents tend to respond positively to the question (social desirability bias) even though their answer does not reflect their true preference.

To conclude, no iterative methods whether double or multiple satisfy the « Gibbard-Satterthwaite » criterion that establishes the conditions under which the WTP elicitation method could be *incentive compatible* (Alberini et al., 1997; Bateman et al., 2001; McNamee et al., 2010; Whitehead, 2002; Whittington et al., 1990).

To minimize the anchoring bias, some authors propose to random the first amount (Eastaugh, 2000). According to McNamee et al. (2010), it is possible to mitigate the starting point bias and the incentive incompatibility using multivariate analysis *including* shift effect, ordering effect. Moreover, their study highlights the importance to conduct a pilot study to

determine the initial bids. In practice, Klose (1999) underlines that « Bidding games require interviews or interactive computer programs and are therefore more costly than other methods which can be carried out by mail survey. » .

- Payment card/scale (PC)

To resolve the starting point bias associated to iterative methods, the payment scale/card has been proposed Mitchell and Carson (1981, 1984). The hypothesis is that the co-presence of bids could limit the anchoring effect. Moreover, the PC is statistically efficient as compared to SBDC and avoid cognitive burden associated to open-ended question. For these reasons it is the most used method in health (Smith, 2006). But, its main drawback is that the WTP chosen is influenced by the range of amounts proposed in the scale. Dubourg et al., (1997) tested two payment cards: the first card proposed amounts ranged up to 500£ and the second one amounts ranged up to 1500£. They studied the WTP for safety features to reduce the risk of sustaining a road traffic injury. The mean WTP was significantly higher in the group with the payment card which proposed the higher amounts. Whynes et al. (2004) in their study to estimate the WTP for a colorectal cancer screening test obtained the same result. Two payment cards were tested, a short version with amounts ranging up 100 £ and a long version with amounts ranging up 1000 £. They found that the mean WTP from the long version was over 30% higher than the mean value from the short version.

Moreover, there seems to be some evidence to indicate a *framing effect* or a *centering bias* (Smith, 2006). Smith tested several payment cards in the context of elicitation WTP to preserve a state of health. Respondents were randomly allocated to the three different versions of the payment card. In the first: values were listed from high-to-low, in the second, from low-to-high and in the third values were randomly shuffled (Random Card Sort : RCS) as initially developed by Carthy et al., (1998). In this shuffled version: each amount was written on a separate card. These cards were shuffled before being given to the respondent (cards were re-shuffled for each new question). The high-to-low version resulted in significantly higher WTP mean than in other versions. The mean WTP is higher in a RCS group compared to the low-to-high group.

According to Smith, the randomly shuffled PC version might produce the most 'valid' values: in RCS group, respondents were surer of their responses. However, the ranged bias has not been studied. Moreover, this result has not been confirmed by other studies. Indeed, based on Smith's study (Smith, 2006), Covey et al. (2007) tested both range bias and classic PC versus random PC. They compared two classic PC with two random PC with different range of amounts. They found that random PC did not allow to mitigate the range bias as compared to classical PC. This result is confirmed by Shackley and Dixon (2014). According to their study, RSC did not allow to mitigate the range bias, but they suggested that it could be controlled taking into account the certainty of the responses. However, this adjustment could highly reduce the sample size. Moreover, Voltaire et al. (2015) also suggested that only uncertain respondents are influenced by framing effect or anchoring effect in the PC.

Many articles showed that respondents were often very unsure of their answers on PC question (Shackley and Dixon, 2014; Voltaire et al., 2017, 2015). We could think that this assertion is generalizable to other elicitation methods. Moreover, several studies showed that in uncertain situations, the unsure respondents tend to answer positively when answering the PC question. If we considered that in a survey respondents are more likely to accept hypothetical offers than in real market, there are more reasons to think that WTP is biased and that the degree of certainty must be taken into account to calibrate WTP. This is the goal of the Multiple Bounded Discrete Choice Method (MBDC).

The MBDC combines a payment card and a scale of polychotomous choice response (Ready et al., 1995) varying from « definitely yes » and « probably yes » to « not sure » « probably no » and « definitely no » for each bid proposed in the payment card (Figure 2). This method proposed by Welsh and Poe, (1998) allows to both increase the precision of the WTP and to collect information on the degree of certainty. The respondent indicates to each bid, the probability he is willing to pay. Then sensitivity analysis could be realized taking into account the degree of certainty. Although according to Wang et al. (2013) the MBDC method seems to suffer from an ordering effect. Indeed, their study confirmed the result of Alberini et al. (Alberini et al., 2003a).

How would you vote if the monthly payment from your household is....for five years?

Monthly Payment (Yuan) \ Your Answer	Definitely Yes	Probably Yes	Not Sure	Probably No	Definitely No
Free (0 Yuan)					
3					
5					
10					
15					
20					
25					
30					
40					
50					
60					
70					
80					
90					
100					
150					
200					
250					
300					
350					
400					
450					
500					

Fig.1. Example of MBDC design.

Figure 2 : Example of MBDC (Wang et al. 2013)

Alberini et al 2003 found that the frequency of "Definitely Yes" responses declines more slowly as the bid amount increases if the bid amount was presented in the initial questionnaire in descending order than ascending order. Their estimations also revealed that a sample provides over 100% higher estimates of mean WTP if the bids are presented in descending order.

Several studies showed that incorporating respondent uncertainty increased WTP values (Alberini et al., 2003a; Cooper et al., 2002; Curtis and Cowee, 2010; Wang, 1997). Indeed, allowing uncertain responses increased the respondent's probability of choosing a higher bid (Curtis and Cowee, 2010; Ready et al., 1995). Moreover, Curtis and Cowe (2010) showed that "when faced with only a dichotomous choice ("yes"/"no"), consumers tend to be more conservative (i.e., reject bids that move away from the baseline) and when faced with multiple choices, consumers have higher rates of "yes" responses ("probably yes," "likely," etc.) and higher WTP estimates. » According to these authors, it is possible to mitigate the range bias to take into account the degree of certainty in the analyses.

More recently a circular payment card has been developed (Chanel and Makhloufi, 2015). This PC presents amounts on a circular diagram (Figure 3) rather than in a list. The aim is to

reduce the anchoring effect. This circular payment card has been tested in the context of insurance premium in healthcare. Authors argue that CPC suffer less from extreme values and from anchoring effect as compared to PC. Moreover, the mean WTP is higher than in a classic PC.

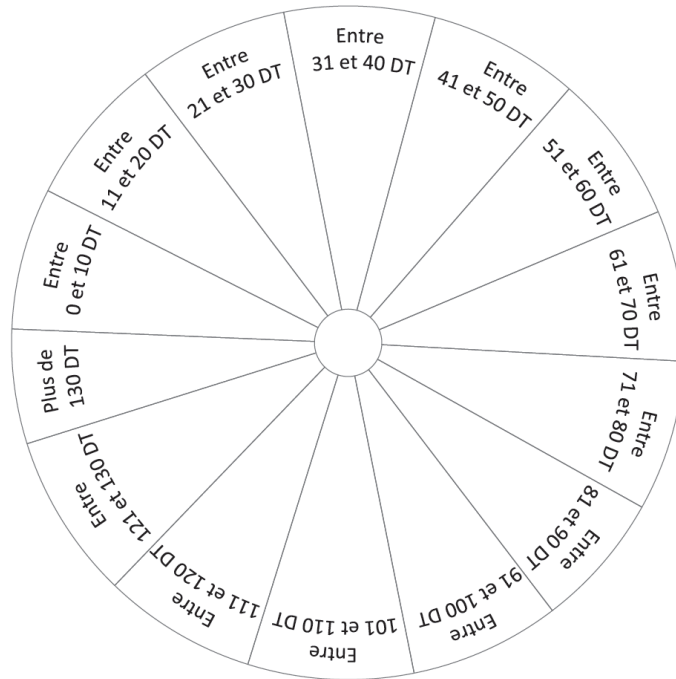


Figure 3 : Circular payment card (Chanel et Makhloufi, 2015)

To summarize the four different methods to elicit the WTP:

- The lack of monetary cues in open-ended question induces an important rate of protest or no responses. This method is thus not recommended.
- The SBDC is one of the most used methods because it is mostly considered incentive compatible, but it is not statistically efficient and it requires a large sample. On the contrary, the iterative methods are statistically efficient, but they suffer from multiple bias like anchoring/starting point bias, “*yea-saying*”, strategic bias. Under some conditions it is possible to mitigate the starting point bias and the incentive incompatibility with an appropriate statistical analysis, but this point requires more investigation.
- Concerning the PC method, to our knowledge, there is no evidence that it is not incentive compatible. However, this method suffers from a range bias. There are also studies that claim that it is possible to mitigate this bias using statistical analysis.
- Lastly, the MBDC method which includes both a PC and a certainty scale could be an alternative to PC method, but it has the same range bias as the PC method.

In all the methods except, the open-ended method, it is necessary to realize a pilot study to know the amount proposed.

b) Mitigation of hypothetical bias:

Several studies suggest that hypothetical values obtained by the CVM tend to overestimate the real values of WTP (Harrison and Rutström, 2008; List and Gallet, 2001; Little and Berrens, 2004). Such a gap between real and hypothetical payments is known as the hypothetical bias (Cummings et al., 1986). Two main methods are proposed to mitigate this bias: the *ex-ante* approach like *cheap talk*, and the *ex-post* approach like *follow-up* question.

- *Cheap talk (CT)*

Cheap talk was first described in the game theory literature as a costless communication between subjects that can be effective in experimental coordination games” (Charness and Grosskopf, 2004).

Cheap talk refers to a script, which is shown to respondents prior to completing an experiment. The script emphasizes the importance of the respondent’s answers, despite the hypothetical nature of the survey.

The content and the length of the script can vary. For example, it can remind the existence of hypothetical bias, precise the direction of bias, remind the budget constraint and the opportunity cost.

Cummings and Taylor (1999) have been the first to test *cheap talk* in a CV survey. They developed a script for laboratory experiments to encourage study participants to respond to the CV question as if they were making an actual financial decision. They developed two alternative versions of the script, both were long and described explicitly the hypothetical bias problem and the expected direction of the bias. The scripts were read to the study participants prior to the contingent valuation question. The results were promising: the CV survey with *cheap talk* script provided similar responses than responses in actual payment treatment for three different public goods.

Since this date, the effectiveness of *cheap talk (CT)* to mitigate the hypothetical bias has been extensively tested and the issues concerning the length and content of the script have been largely debated.

The results are nonetheless not conclusive. CT has been shown to reduce the mean WTP in several studies ((Brummett et al., 2007; Bulte et al., 2005; Cummings and Taylor, 1999; Landry and List, 2007; List et al., 2006; Mozumder and Berrens, 2007; Silva et al., 2011; Whitehead and Cherry, 2007). However, several others (Ami et al., 2011; Blumenschein et al., 2008; Loureiro et al., 2009; Nayga et al., 2006) found that CT does not reduce WTP. According to Aadland and Caplan (2006), CT produces inconsistent results. The authors developed a short “neutral” CT script for use in a telephone survey. The script did not mention the direction of hypothetical bias. They found that the neutral CT script provided willingness-to-pay estimates higher than the standard contingent valuation method. In other words, the neutral script exacerbated the hypothetical bias. A similar result was found by Carlsson et al. (2011). However, in a previous study Aadland and Caplan (2003) founded that CT reduces the WTP. In addition, Morrison and Brown (2009) found that CT can have a too strong influence on the stated preferences, i.e. leads to underestimation of the actual WTP. Several studies showed that CT only influences the preferences of specific sub-groups. Fifer et al., (2014) tested a medium CT in stated choice experiments on transportation research. Their CT remembered the likely bias from the hypothetical survey and emphasized the importance of the results. The respondents were randomly allocated in two groups with and

without CT. They found that CT was particularly interesting when the respondents didn't have experience of the good or service proposed and hypothetical bias was eliminated for this group. This result is supported by Champ et al., (2009) who used a "medium" length CT script included in a mail survey. Similarly, numerous authors have found similar results: inexperienced respondents were more sensitive to CT than experienced ones (Aadland and Caplan, 2003; List and Gallet, 2001; Lusk, 2003; Murphy et al., 2004).

Several studies have demonstrated that only female respondents were influenced by the CT (Barrage and Lee, 2010; Ladenburg et al., 2011; Mahieu and Riera, 2010).

Brown et al., (2003) with a long CT and Aadland and Caplan (2003) with a short CT found that CT was more effective to eliminate hypothetical bias for respondents with higher willingness to pay.

More recently another *ex-ante* method has been developed: the honesty approach. The honesty approach was formalized by administering an oath to respondents, who were asked to swear to tell the truth (Carlsson, 2013; Jacquemet et al., 2013). This method appears interesting for Loomis (2014) & Stevens et al., (2013).

To conclude, results concerning *cheap talk* are not clear. *Cheap talk* could reduce the hypothetical bias for sub populations like inexperienced/ least informed respondents and for respondents who are willing to pay a high amount. However, its ability to mitigate hypothetical bias is not clearly demonstrated. Moreover, the design of the *cheap talk* must be made with caution as the information and the length of the cheap talk seem to have an impact of the WTP estimated.

- *Follow-up question*

Empirical evidence shows that respondents are often uncertain when answering contingent valuation questions (Alberini et al., 2003a; Champ et al., 1997; Ready et al., 1995). Respondent uncertainty is often considered as one of the main limitation of contingent valuation methods because it could influence the validity of CVM results. Several studies (Champ et al., 1997; Johannesson et al., 1998) have shown that the higher the degree of uncertainty of a respondent about his WTP is, the lower the probability he would actually pay the stated amount in a real situation is.

Numerous studies have studied the uncertainty and the manner to use it in WTP estimation (Shaikh et al., 2007).

Adding information on uncertainty might reduce the hypothetical bias and result in more efficient WTP estimation. Indeed, some articles used uncertainty data collected to correct the discrepancy between the WTP collected in a CV survey and the prices actually paid, either in laboratory or in real life experiments (Blumenschein et al., 2008, 1998, Champ et al., 2009, 1997; Li and Mattsson, 1995; Moore et al., 2010; Morrison and Brown, 2009; Poe et al., 2002).

However, one should keep in mind that measures of uncertainty are very different. Indeed, numerous researches have been realized on this topic and a large variety of certainty measurement methods have been developed and their capacities to mitigate the hypothetical bias have been tested. We chose to present here the latest developments related to the *follow-up* question since it is the most often used. The *follow-up* question is asked after the WTP question to measure the respondent's degree of certainty concerning his WTP.

The *follow-up* method is first used to collect the degree of uncertainty and then to calibrate the WTP. Several methods are proposed:

The Numerical Certainty Scale (NCS)

- This method initially developed by Li and Mattsson, (1995) consists in measuring the degree of respondent uncertainty on a scale ranging from 0% to 100% (with 5% intervals). Thus, these percentages are used in the likelihood function as weights, representing the probability that the real WTP value is higher or smaller than the bid amount. Champ et al. (1997) also built a numerical scale ranging from 1 (very uncertain) to 10 (very certain). The respondent could indicate how sure he feels. "Yes" responses to the closed WTP responses are then recoded as a "no" responses if the participant gives a score below a given threshold proposed by the researcher, while all "no" responses remain unchanged.

The Polychotomous Choice (PC)

Johannesson et al., (1993); Ready et al., (1995) first introduced the PC method to elicit respondent uncertainty. PC format can be applied as a post-valuation question or directly in the WTP question (like in the MBDC method) by providing response categories such as 'definitely yes', 'probably yes', 'maybe yes', 'maybe no', 'probably no', and 'definitely no'.

Ready et al. (1995) found that the PC generated higher rate of “yes” responses because the respondent could give an affirmative response, without making a strong commitment. According to Hanley et al., (2009), the Polychotomous Choice could be biased by a framing effect. The respondent could interpret differently the words, but this criticism is also made to the NCS method (Ekstrand and Loomis, 1998).

In order to limit this interpretation bias an alternative method has been developed. It allows respondents to choose either a single amount or a range of values. It is particularly used in WTP using an open question (Hakansson, 2008) and a payment card where the respondent has to choose in two separate lists two values (Figure 4), one representing the lower and the other one the upper limits of the interval including his WTP (Voltaire et al., 2013). Thus, a respondent certain of his WTP gives a single value, while a respondent uncertain gives a range of values. Numerous authors (Broberg and Brännlund, 2008; Hakansson, 2008; Hanley et al., 2009; Mahieu and Riera, 2010) showed the superiority of this method as compared to classical measures of uncertainty. This method has the advantage to be a revealed measurement of the certainty rather than a declared one and implies a low cognitive effort.

Box 1

The WTP valuation question.

If you were to purchase the entrance fee, could you pick the maximum amount from those listed below that you would be willing to pay? (Option 1). If you cannot state a single amount, could you indicate a range that describes the amount you would be willing to pay? (Option 2)

Lower amount	Upper amount
<input type="checkbox"/> €0	<input type="checkbox"/> €0
<input type="checkbox"/> €5	<input type="checkbox"/> €5
<input type="checkbox"/> €10	<input type="checkbox"/> €10
<input type="checkbox"/> €15	<input type="checkbox"/> €15
<input type="checkbox"/> €20	<input type="checkbox"/> €20
<input type="checkbox"/> €25	<input type="checkbox"/> €25
<input type="checkbox"/> €30	<input type="checkbox"/> €30
<input type="checkbox"/> €35	<input type="checkbox"/> €35
<input type="checkbox"/> €40	<input type="checkbox"/> €40
<input type="checkbox"/> €45	<input type="checkbox"/> €45
<input type="checkbox"/> €50	<input type="checkbox"/> €50
<input type="checkbox"/> €55	<input type="checkbox"/> €55
<input type="checkbox"/> €60	<input type="checkbox"/> €60
<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

Figure 4 : PC used by Voltaire et al. 2013

In addition to the uncertainty measurement issue, the question of information collected is central. Regarding numerical scales, the value obtained can either be recoded into a binary or a continuous variable. One of the most common method is to dichotomize responses obtained with the certainty scale using a threshold beyond which WTP will be considered as certain. Champ et al., (1997) and Blumenschein et al., (2001) found that a threshold of 10 provides WTP estimations no significantly different than ones in a real market. Others authors used a lower threshold (Ethier et al., 2000; Poe et al., 2002) fixed to 7, meaning that all "yes" to the dichotomous question are recoded into "no" if the response to the certainty scale is less than 7. This threshold is fixed to 8 in other studies (Champ and Bishop, 2001). Finally, Murphy et al., (2004) highlighted that the threshold level is arbitrary defined. Moreover, this method is relevant only if the respondent who said « no » to the proposed amount is sure that he does not want to pay (Shaikh et al., 2007). Indeed, after recoding, the uncertain answer is analyzed as a missing data or a definitely "no.". Only "yes" responses

considered as certain are analyzed using basic statistic. However, alternative models can be used to take into account the different levels of certainty associated to yes responses (Loomis and Ekstrand, 1998). The *ASymmetric Uncertainty Model* (ASUM) multiplies the “yes” responses by the certainty score: A “yes” response with a 10 score is assigned a probability of 1 to pay the given amount, whereas an individual selecting a “yes” response with a score of 1 will be assigned a probability of 0.1 to pay the given amount.

Contrary to the ASUM model, the *Symmetric Uncertainty Model* (SUM) developed by Ekstrand and Loomis (1998) proposes to recode both "yes" and "no" responses to the WTP question. For example, a “yes” associated with a score of 6 on the NCS, will be recodes as 0.6, and a "no" response with the same level of certainty will be recoded as 0, 4 (1-0,6). This model has the advantage to keep all the available information.

Martínez-Espiñeira and Lyssenko (2012) compared six alternative calibration techniques of NCS. They found no statistically significant differences in mean WTP estimates derived from different techniques. Efficiency of the estimates was improved in comparison with the basic model in two out of six approaches. The first is monotonic transformation of the NCS, this method was an extension of the Loomis and Ekstrand model (1998), and the second wanted to preserve “Don’t know” responses as such, rather than recoding them into zero values.

The recoding of the uncertain responses measured with the Polychotomous Choice method is subjective and decided *a posteriori* (Akter et al., 2008). For Polychotomous Choice questions with three modalities, it is common to recode the uncertain answers into "no" or in missing data (Vossler et al., 2003). For questions with more than three modalities, possibilities of recoding are numerous. However, in a private context, authors have shown that considering « probably sure » responses as « no » leads to a WTP estimation no statistically different than real price observed in a market place (Blomquist et al., 2009; Blumenschein et al., 2008, 2001, 1998). More recently, the literature underlined contradictory results. Logar and van den Bergh (2012) showed that the calibration method does not improve the efficiency in WTP estimation. In their study that measures WTP for a protection beach erosion program, Logar et al. (2012) tested two methods: On the first calibration method, uncertain responses were analyzed as missing data and on the second one uncertain ‘yes’ responses were recoded as ‘no’ responses. Their study found no evidence that the mitigation technique offers any gain over the conventional model without

calibrating the certainty. However, the calibration technique reduces the mean of WTP, but this reduction is statistically significant only when the most certain « yes » responses are recoded as « no » responses.

Finally, Shaikh et al. (2007) compared five empirical methods to address uncertainty. Their results indicated that incorporating uncertainty has the potential to increase fit, but could introduce additional variance.

Although, numerous studies showed the interest of *follow-up* question to mitigate hypothetical bias, to date there is still little agreement on what is the best method (Akter et al., 2008). However, the NCS has the advantage to less suffer from an interpretation bias.

For the recoding method, the threshold for considering a response as certain is not clear, although it appears to be between 7 and 10. But without real life data, the choice seems to be arbitrary.

c) *Payment vehicle and periodicity*

The payment vehicle refers to the type of payment being asked to respondents. Different payment vehicles could be used as: *out-of-pocket* payment, payment via an insurance premium or via a taxation, other types of payment exist as entrance fee. The choice of the payment vehicle depends on the context of the study. The payment vehicle could influence the answers (Morrison et al, 2000).

A consensus seems to exist on the choice of the vehicle of payment which should be realistic and neutral (Mitchell and Carson, 1989). Moreover, Carson, Flores and Meade (2001) found that the payment vehicle could be considered as credible by respondents if it could convince them that the result of the study could be useful and thus decrease the hypothetical bias. Bateman et al. (1995) compared proportions of zero WTP bids under general donations, donations to a specific fund, and direct taxation. Significant differences in the proportions of zero bids were observed among the three donation mechanisms. Thus, there is overwhelming evidence that the choice of payment vehicle influences both the level of WTP and the acceptance rate of a scenario.

Ivehammar (2009) compared a mandatory vs a compulsory payment: an increase of local tax with three payment vehicles in the valuation of environmental encroachment caused by roads in Sweden: redistribution of a given local tax revenue, voluntary contributions to a fund for financing the investment (a donation), and an obligatory earmarked charge. The

payment was collected per year for 10 years. The author concluded that (i) the redistribution of already collected tax money can give higher WTP than raised taxes or a new fee. This result is supported by Bergstrom et al., (2004) who compared mean WTP for water quality protection under tax reallocation and special tax, and found that mean WTP under tax reallocation is higher than mean WTP under special tax (ii) donations as a vehicle of payment results in lower or the same WTP than tax. Numerous studies found the same result, all in the environmental field (Akcura, 2015; Carneiro and Carvalho, 2014; Champ et al., 2002; Jakobsson and Dragun, 1996; Wiser, 2007).

The duration of the payment but also the payment periodicity can impact the WTP. A large majority of studies found that people have a high discount rate, which means that people are insensible to the duration of payment. This insensibility is more or least strong according to studies. Thus, Kahneman and Knetsch (1992) showed that median WTP is not statistically different for a one year payment or annual payment during 5 years. This result is supported by Brouwer et al., (2008).

Other studies found more moderate results and showed only a weak insensitivity to the duration of payment (Bond et al., 2009; Kim, 2011; Stevens et al., 1997; Stumborg et al., 2001). Indeed, these studies showed a decrease of the WTP when the duration of payment was longer. However, the discount rate was higher than the discount rate generally considered in economic theory.

Numerous studies demonstrated that a monthly periodicity could generate higher WTP than annual WTP (Andersson, 2013; Gyrd-Hansen et al., 2014; Johannesson et al., 1993; Soliño et al., 2009). For example, Gyrd-Hansen (2014) compared the mean WTP provided with a PC with monthly payment and a PC with annual payment. The amounts were the same for the two PC, but the mean WTP was higher than 100% in the PC with monthly amount. These results have to be interpreted with caution. Indeed, this difference could be explained by a central bias, often observed in PC (Whynes et al., 2004).

A possible solution to mitigate this effect would be to present both monthly payments and their annual equivalent payments like Champ and Bishop (2006) proposed . This could allow a better estimation of the opportunity cost.

d) Presentation of the information

Several studies conducted in cognitive psychology and behavioral economics analyzed the relationship between information and individual's preferences in a context of hypothetical choice (Altman, 2015).

In CV, to improve the validity of the survey, the scenario has to be as realistic as possible to mitigate hypothetical bias (Mitchell and Carson, 1989) and describe in a simple understandable way the programs assessed and their consequences. Thus, it is necessary to avoid the use of technical terms (Arrow et al., 1993; Mitchell and Carson, 1989; Smith, 2003). To date there has been little agreement on the quantity of information to provide. The NOAA panel guidelines recommend to provide the more detailed information as possible (Arrow et al., 1993). More recently, the literature suggests that providing too much information could increase the cognitive burden and recommends to be brief (Smith, 2003). This divergence could be explained by the different fields of application of these recommendations. Indeed, the NOAA's guideline was developed in environmental field, whereas Smith analyzed the healthcare field (Smith, 2003). It is nonetheless possible to add a questionnaire to check the understanding of the information (Arrow et al., 1993).

Moreover, the presentation of scenario could impact the WTP. Indeed, a very narrative scenario induces a lower WTP than a shorter one presented with ticks, but containing the same information (Smith, 2008). However, it is difficult to know which method leads to the least bias because we do not know the true WTP of the agent. However, Smith argued that a longer scenario could increase the framing effect. Moreover, similarly to Kahnemann and Tversky (1982), Smith pointed out that a labelisation of scenario could impact the WTP.

e) Order effect:

An order effect occurs when the answer to a question varies due to the positioning of the question or of the other survey items (Powe and Bateman, 2003). There are two types of order effect (Cai et al., 2011). The proximal order effect caused by the order of questions when several goods/services are assessed and the distal order effect induced by the order of presentation of goods/services.

- Proximal order effect

The proximal order effect occurs when several WTP questions are asked sequentially. The WTP of a good/service could be impacted by the relative position of its WTP question (Bateman and Langford, 1997; Boyle et al., 1993; Carson et al., 1998; Carson and Mitchell, 1995; Clark et al., 2009; Halvorsen, 1996; Kahneman and Knetsch, 1992; Stewart et al., 2002). Generally, it is observed that the earlier the good/service appears in the preference measurement sequence, the higher its WTP will be (Payne et al., 2000; Veisten et al., 2004). The origin of proximal order effect could be different according to the relation between the different goods (Bateman and Langford, 1997). Indeed, in the case of complementary goods (exclusive list), we talk about a sequence effect. For complementary good, the influence of the order is explained by effects of income and substitution (Carson and Mitchell, 1995). It is possible to reduce this bias by allowing respondents to modify their answers *a posteriori* (Longo et al., 2008).

When the goods are presented as an exclusive list (substitutable goods), each good is presented as a mutually exclusive alternative to the other goods presented. If a difference is observed according to the position of the good in the evaluation sequence, we talk about an "order effect". For substitutable goods, their position in the evaluation sequence should not have an impact on the value of their WTP according to the rational choice theory (Kahneman and Tversky, 1984; Tversky et al., 1988). Kahneman and Knetsch, (1992) argued that for a public good, the order effect could be induced by the search of moral satisfaction. Andreoni, (1990) suggested that the respondents look for *warm glow effect*. Stewart et al., (2002) called this effect: «*fading glow effect*». For these authors, the respondent has moral satisfaction or warm Glow to contribute to a public good and the first good presented would capture the entire respondent's utility associated with this satisfaction. To mitigate this effect, some authors (Andersson and Svensson, 2014; Bateman et al., 2004) suggested to give the possibility to revise his WTP, but also to adopt an advanced disclosure strategy. This method consists in presenting all the goods which will be assessed before the measure of WTP. This technique is opposed to stepwise designs where respondent discovers as the survey progresses the goods to be evaluated. Others studies do not confirm the advantage of advanced disclosure on stepwise designs (Andersson and Svensson, 2014; Nielsen and Kjaer, 2011).

- Distal order effect:

The second type of order effect is induced by the order of presentation of the options (good assessed). This ordering effect occurs before the WTP questions. It influences the respondent's preferences and then his WTP (Cai et al., 2011).

For example, Stewart et al (2002) tested the order effect in a CV survey comparing 3 healthcare programs. Respondents were asked to classify programs in the order of their preference and then to give their WTP for these programs. The order effect was presented not only in the WTP question, but also in the preferences of the respondents: The program presented first had a much higher probability of being ranked at the top of preferences. It seemed that the earlier the good appeared in the evaluation, the higher the value associated with it was (Payne et al., 2000; Veisten et al., 2004).

If there is evidence of the existence of ordering effects, it would seem that they more impact respondents with a small or experience of the program being evaluated (Boyle et al., 1993; Cai et al., 2011). To limit these order effects, it is necessary to randomize the sequence of WTP questions, but also the order of presentation of the different programs (Cai et al., 2011; Stewart et al., 2002).

Finally, it is possible to observe an insensitivity to scope/scale or an embedding effect. Indeed, numerous studies reported an insensitivity to the size of the good being valued or a modification of the WTP non-proportional to the size of the good (Kahneman and Knetsch, 1992). Some authors suggested that this insensitivity is due to a poor design of the study (Carson et al., 2001; Carson and Mitchell, 1995; Smith, 1992). Others authors argued that this insensitivity is due to cognitive constraints that would lead to instability of preferences (Andersson, 2008; Corso et al., 2001; Kahneman and Knetsch, 1992), but also to anchoring effect (Bergman et al., 2010).

Some studies have shown that individuals sure of their response, as well as those who feel well informed, but also those with greater cognitive ability, gave WTP more consistent with economic theory (Alberini et al., 2004; Andersson, 2008; Corso et al., 2001). Moreover, the bias of moral satisfaction could be explain this insensitivity for public goods (Stewart et al., 2002). It would seem that adopting a bottom-up approach which consists in evaluating the larger good first, allows a greater sensitivity to the size of the evaluated goods (Andersson and Svensson, 2014).

3.3 Conclusion

Contrary to CEA or CUA which limits the evaluation of the program to health outcomes, CBA can take into account numerous dimensions as process utility, option value or externality. Moreover, because the benefit of the program is expressed in monetary terms CBA provides information on the net benefit of the program. CBA is a measure of allocative efficiency, whereas CEA/CUA is related to the production efficiency of a program. However, the central point of CBA is the monetarization of the outcomes. The most popular method is the contingent valuation. This method is based on Welfare economics that considers that collective preferences are the aggregations of individual preferences. CV provides price for a good/service which is out of the market using a survey that collect respondent's willingness to pay to benefit from the good/service. Although, this method is often criticized because of its hypothetical character, it allows to estimate the option value of a program even if few studies explored this advantage.

4 Chapter 2 Development of a decision aid: Elicitation of cancer patients' preferences

4.1 Context:

In France, cancer treatments are mainly provided in hospitals since they require a high level of technical and professional support mainly concentrated in hospitals. However, hospitals are often located in big cities, perceived as too expensive and crowded, thus difficult to access. Consequently, French decision makers aim to develop alternatives options to hospital such as Hospital at Home (HaH) and Proximity Structures (PS). Their goal is to reduce the burden of hospital, avoiding hospital admissions, or shortening the length of stay, thus both trying to reduce costs and improving the access to care especially for patients who live far away from big cities.

Proximity structures (multidisciplinary home care) usually gather in the same place GPs, nurses and/or physiotherapists in big cities as well as in suburbs, small towns and rural areas). These healthcare professionals must share common healthcare project such as developing prevention or being specialized in one or several chronic diseases. PSs do not propose any accommodation, meaning that the patient has his care and then goes back home. In France, there is an increasing number of PSs since the 2010's, around 500 in 2012 and 1160 in 2016, with less than a half located in rural areas (DGOS, 2017) . PSs are aimed to decrease the problem of what is called in France "medical deserts", developing care structures better fitted to young clinicians who often prefer to work in group rather than alone (Afrite et al., 2013). Moreover, PSs could be cost saving, sharing costly equipment. Thus, PSs are presented in French public health policies as a potential efficient tool to improve the access to care and to cost containment. In such a context, even if PSs do not currently propose cancer treatments, we thought it was a relevant option to study.

Hospital at home is developed in France since the 50's for medical or paramedical care. The structure in charge of the coordination of care, has to provide a continuity of care 24 hours a day, 7 days a week through a hotline. Moreover, HaH is dedicated to technical care meaning that without the support of HaH the patient will be at hospital. The development of HaH in France has been important in the last decade, +119% between 2005 and 2009 (IGAS, 2010).

They nonetheless represent a small part of hospital stay, less than 0.5% whatever the pathology (IGAS, 2010). The aim of is to increase this proportion to 1.2% in 2018 (MECSS, 2016). A large variety of treatments could be done in HaH, as antibiotics, nutrition in infusion, treatments against pain, technical dressing, chemotherapy, palliative care. Several meta-analysis have demonstrated that patient safety at home is the same as in hospital (HAS, 2015; Shepperd et al., 2016, 2011).

The increased incidence of cancer and its transformation into a chronic disease led to the increase of chemotherapy needs. Chemotherapies are mainly realized in hospital day care, but to respond to the increase of needs, French authorities have developed HaH. Cancer treatments represented 17.5% of HaH in 2010, mainly for chemotherapies (Couillerot-Peyrondet et al., 2016; IGAS, 2010). But, in 2012, HaH represents less than 1% of chemotherapy. The last National Cancer Plan puts HaH as a priority (INCA, 2017).

Although, numerous studies demonstrated that HaH decreases the number of admission and the length of stay in hospital (Hughes et al., 1997; Shepperd et al., 2013, 2008), the argument of cost-saving is more questionable. HaH is often associated with cost reduction (Romagnoli et al., 2013), But several studies mitigate this result (Shepperd et al., 2011, Luengo-Fernandez et al. 2013, 2016), underlining that part of cost is taken by families through informal care.

In fact, management of care in HaH is too heterogeneous to draw a general conclusion: the cost saving depends on the disease and the type of care provided. Moreover, the transferability of outcomes between countries is generally questionable and few studies are available in the French context. The few studies conducted in the field not only highlight the lack of economic evaluation in the field, but also first the huge heterogeneity in HaH, and secondly the different efficiency of HaH compared to one day hospitalization related to diverse factors such as the frequency of chemotherapy (HAS, 2015; IGAS, 2010).

The last argument in favor of HaH is the patients' satisfaction. In France as in other countries, since the 2000's there is a legal and social movement to better take into account patient's preference, and going further, patient's participation in decision-making in healthcare (Moumjid et al., 2017). Additionally, a large majority of studies conducted in

palliative cancer care (Gomes and Higginson, 2006; Higginson and Sen-Gupta, 2000; Woodman et al., 2016, 2015) showed a preference for home care when those are elicited. In line with this topic, decision aids are increasingly developed (Stacey et al., 2017). They are designed to facilitate healthcare consumers' involvement in health decisions by helping them to elicit their preferences for an option. Decision aids are tools like a booklet, a CD-ROM, or a web-based tool designed to convey evidence-based information about the options' benefits and harm, they describe and explain the options available in standardized manner. (Utens et al., 2013) showed that decision aids compared to usual information notably improved patients' knowledge regarding options and helped them to clarify their preferences.

To our knowledge, in France, no study has investigated patients' preferences for cancer management between home care and proximity structures versus hospital. We thus proposed to explore this issue bringing research outcomes that could help public health decision makers in the domain.

4.2 Objectives:

Our aim was to elicit patients' preferences for HaH, proximity structures versus hospital care in cancer, to explore whether patients' preferences match or not with the current orientation of French healthcare policymakers concerning the supply of care in cancer treatments.

4.3 Methods

4.3.1 Development of the decision aid

We decided to develop a computerized decision aid, on touch pad, to elicit patients' preferences since it has been shown to allow to get more complexity without diminishing the understanding, to provide a standardized presentation, a greater interactivity and thus to improve the quality of the information conveyed (Stacey et al., 2017).

The tool has been developed with healthcare professionals, experienced researchers in decision aids and with a computer programmer. The first version of the tool has been pre-tested among patients and healthcare professionals not involved in the survey.

The tool was composed of three main parts: (1) a decision aid to give information on disease management options (home care, hospital care, and proximity structures), (2) a survey to elicit and measure the strength of the patients' preference for one option, (3) a sociodemographic questionnaire with the collection of the patient's and his/her family experience of care. (Appendice 1 Decision aids tool : French paper version).

(1) The first part of the decision aid provided information on disease management options: home care, hospital care, and proximity structures. This part has been developed in close collaboration with clinicians and nurses of these 3 different structures.

The options' presentation began with a general presentation of management options, in particular it was underlined to patients that in the management of their cancer, any treatments could be realized with the same level of safety and effectiveness whatever the structure. Then, more detailed information was provided on the options: description of the structure, composition of the medical staff, potential out-of-pocket expenses, and the pros and cons of each option. This part was followed by a questionnaire to check the understanding of the information given.

(2) The aim of the second part was to elicit patient's preference and the strength of his/her preference for one option. Preferences were measured in two ways: 1) with a discrete question: The patient had to choose the option he/she preferred (hospital, home care or proximity structures) by type of care (chemotherapy, blood transfusion, enteral nutrition, treatment against pain by drip, or dressing...). 2) Visual Analog Scales: The patient had to classify the three options in preference order (from the most preferred to the least preferred) and indicate with VAS the strength of his/her preference for each one. This part also contained a questionnaire to collect patient's reasons of his/her preferences. In this questionnaire, statements from real patients giving reasons for their choices were used. They have been collected in studies previously conducted by our team (Havet et al., 2011; Remonnay, 2008; Remonnay et al., 2003, 2002).

(3) The third section collected socio-demographic data, information on patients' experience of care, a quality of life question and a questionnaire on his/her feedback on the tool (its ergonomics, if it was user-friendly or not etc.).

The tool was developed to be compatible with a tactile tablet which allowed us to have several types of supports media (videos, text, audio). Moreover, a tactile tablet was easier to use for patients who did not have computer skills. The application started with a simple click on the program and the patient was directly on the home page of the tool. At the beginning of the program, a video presented the aim of the study, gave the legal information and explained the use of the tool. All the information contained was presented with a text synchronized with a voice.

4.3.2 Pretests of the decision aid

Pre-tests concerning the content of tool, completeness and accuracy of the information given, difficulties of understanding, neutrality and ergonomics, were realized among a convenient sample of healthcare professionals and patients using semi-structured individual interviews based on an interview guide (Appendice 2)

Five health care professionals participated into the pre-tests: two clinicians not involved in a home care structure or a proximity structure and three (two clinicians and one nurse) working in two different home care structures. Fifteen patients with different sociodemographic profiles participated: 4 women and 11 men, five already experienced home care, the youngest was 24 and the oldest 79. The interviews took place at the patient's home or in a meeting room in Leon Bérard cancer center, or in their hospital bedroom as the patient preferred.

The tool was judged to be user-friendly, easy-to-use, provided balanced information but some patients wanted to have more information on proximity structures, and some technical terms were difficult to understand for some of them. Moreover, some patients would have liked to go back to read the information again or change their answers. The quality of life questionnaire SF36 was judged to be too long. The interviewers observed that the end of the tool was too abrupt.

Following these pre-tests modifications have been made: the text on proximity structures has been developed, the possibility to go back has been added, technical terms have been explained. The quality of life questionnaire SF 36 has been removed and replaced by questions on patient's perception of their health. A video has been added at the end of the tool to end up the tool and thank participants.

4.3.3 Subject and study settings

Authorizations necessary for the study were obtained (Ethics committee, CCTIRS, CNIL). All participants provided written, informed consent. The survey was administered to 386 participants from three hospitals in Rhone-Alps where patients' socio-demographics are known to be different (INSEE, 2015; ORS, 2015) . Participants were required to speak and write French, be aged at least 18 years, not having cognitive impairment, provide informed consent and be treated for cancer. No computer skills were required. The survey was self-administered, but the interviewer could remain close to the patient to help him/her, if and only if the patient needed. The survey was administrated in the patient's room.

Because we thought that the type of cancer and the type of care could influence patient's preference, we added a paper-based questionnaire completed by the clinician in charge of the patient to collect: health resources consumption the last 6 months (chemotherapy, blood transfusion enteral or parenteral deeding, antibiotherapy by infusion, treatment against pain in infusion, radiotherapy) and the type of cancer.

Table 1 Patients'preferences determinants hypotheses

Hypothesis 1:	Already have had an experience in home care or proximity structure increases the preference for care in these types of structures
Hypothesis 2:	To think that a place of care is more secured or that the staff is l more available increases the probability to have a preference for this type of place
Hypothesis 3:	To live far away from hospital /to think that travels are painful or to avoid traveling/or to think waiting times are painful increases the probability to have a preference for alternative structures
Hypothesis 3bis:	Distance could be more important for older patient or isolated patient
Hypothesis 4:	To have a poor quality of life / to think that household tasks are painful increases the probability to have a preference for hospital
Hypothesis 5	To live in couple/feeling supported/wanting to stay close to his/her family increases the odds to prefer home care or proximity structures
Hypothesis 5bis:	Isolated patients prefer hospital
Hypothesis 6 :	Patient who do not want to be a "burden" for their family prefer hospital care (this effect could be more important for young patients) To have children at home could increase the probability to prefer hospital
Hypothesis 7 :	To have a low income increases the probability to prefer hospital
Hypothesis 8	To be a young woman could influence preferences in favor of hospital
Hypothesis 9 :	Wanting to preserve his/her lifestyle increases the probability to prefer home care
Hypothesis 10 :	Wanting to separate home and place of care increases the probability to prefer hospital
Hypothesis 11 :	To be scared of hospital, not wanting to see other patients decreases the odds to prefer hospital
Hypothesis 12 :	Young patients have a preference for home or proximity structures

4.3.3.1 Statistical analysis and econometric specification

All analyses were conducted using STATA 13.1 (Stata Corporation, College Station, Texas, USA). Summary statistics for patients' characteristics and attitudes concerning the 3 options (hospital care, home care, proximity structures) are presented using means with standard deviations or raw numbers and percentages. Differences between patients' characteristics according to recruitment center or differences between patients' characteristics and attitudes according to their preferences were analyzed using the χ^2 Test (or Fisher exact test), T test or Two-way ANOVA.

4.3.3.2 Econometric models:

Multivariate econometric models were used to explore the determinants of preferences.

Hypotheses concerning determinants have been presented in Table 1.

Our dependent variable was the ranking of options according to preferences. Consequently, the most relevant model seemed to be the rank ordered logit model (ROL), firstly introduced by Beggs et al., (1981) in the economics field economics but previously developed in marketing known as the Plackett–Luce model (Marden, 1995) and exploded logit model (Punj and Staelin, 1978) and more recently in conjoint analysis as the choice-based method (Hair et al., 2010). This model supports both alternative specific variables and case specific variables. For alternatives specific variables, the values vary across alternatives and for case specific variables only across alternatives. In our case, we had only one alternative specific variable: the patient's experience of the different places of care. This variable took the value 1 if the patient already had care in the option (hospital, home, PS) and 0 if not. The case specific variables change across individuals, but not across options (for examples: age, sex...).

The rank-ordered logit model is a generalization of the Multinomial Logit Model (MLM). The MLM is a nominal regression model which means that the dependent variable is an unordered categorical variable. It applies mainly in the context where an agent chooses from unordered set of options. The MLN fits separate binary logits among all pairs of options (Long and Freese, 2014) and supports only case specific variables (individual variables). However, it is possible to add one in an Alternative Specific Conditional Logit Model (ASCL) which is an extension of two nominal regression models: The Multinomial Logit Model and the Conditional Logit Model (Cameron and Trivedi, 2005; Long, 2014; McFadden, 1974).

For all these models (ROL, MNL, ASCL), the theoretical framework is the random utility model. We use the random utility framework (Manski, 1977) to represent the preferences of individuals and explain first the equation of the ASCL model and then the equation of the ROL models.

If an individual faces a choice between m options, he selects options j if options j yields more utility than any other available options:

$$y_i = j \text{ if } U_{ij} > U_{ik} \quad \forall k \neq j$$

where y_i is the options chosen by individual i among a set of options $j=1,\dots,J$.

Consequently, the probability that the individual i chooses options j is given by:

$$P_{ij} = \Pr(y_i = j) = \Pr(U_{ij} > U_{ik}) \quad \forall k \neq j$$

The utility of the individual i obtained from choosing options j is made up of observable and unobservable parts:

$$U_{ij} = V_{ij} + \epsilon_{ij} \quad (1)$$

Where :

- V_{ij} is a function of observable attributes of the options. (alternative specific variable) x_{ij} and of the individual (case specific variables) z_i
- ϵ_{ij} is the non-observable random term. It follows independently and identically an extreme value (Gumbel) distribution.

The model observable utility V_{ij} is specified to be linear in parameters function:

$$V_{ij} = x'_{ij}\beta + z'_i\gamma_j \quad (2)$$

where :

- x_{ij} represents characteristics that vary across options (whether they vary by individual or not). It is the alternative specific variables for options j and case/individual i
- β does not vary over individuals or options
- z_i represents characteristics of the individuals that are constant across options
- γ_j is a set of coefficients (like β) contains the effects of the variable z on the choice j but the j coefficients vary over options.

Finally, equations (1) and (2) involve:

$$U_{ij} = x_{ij}\beta + z_i\gamma_j + \varepsilon_{ij} \quad (3)$$

The probability that the individual i chooses the option j : $\Pr(y_i=j)$ is written:

$$\Pr(U_{ij} > U_{ik}) \forall k \neq j$$

If we introduce the definition of the utility function U , we obtain:

$$\begin{aligned} &= \Pr(V_{ij} + \varepsilon_{ij} > V_{ik} + \varepsilon_{ik}) \forall k \neq j \\ &= \Pr(\varepsilon_{ik} - \varepsilon_{ij} < V_{ij} - V_{ik}) \forall k \neq j \\ &= F(V_{ij} - V_{ik}) \forall k \neq j \end{aligned}$$

Where F is the logistic distribution function with mean 0 and scale parameter typically normalized to 1 ($\sigma_i=1$)

$$\Rightarrow P_{ij} = \Pr(y_i = j) = \frac{\exp(\sigma_i V_{ij})}{\sum_{k=1}^J \exp(\sigma_i V_{ik})}$$

The coefficients β, γ_j are estimated using the method of the maximum likelihood, $\gamma_0=0$ for identification.

This type of model allows to study the determinants of preferred option: ASCL. However, when a complete ranking of options is available, these models do not exploit the whole information and appear not efficient enough.

For the ROL model, if we use the notation defined for ASCL, the probability that option j is most preferred by individual i is defined by :

$$\Pr(y_{ij} = 1) = \Pr[U_{ij} \geq \max\{U_{i1}, \dots, U_{ij}\}] = \frac{\exp(V_{ij})}{\sum_{k=1}^J \exp(V_{ik})}$$

The response of individual i is defined by the vector $r_i = (r_{i1}, \dots, r_{ij})'$

Where r_{ij} is the option number that receives rank j by individual i . Under the above assumptions on utilities, the probability of observing ranking r_i equals:

$$\Pr(r_i) = \Pr[U_{ir_{i1}} \geq U_{ir_{i2}} > \dots > U_{ir_{ij}}] = \prod_{j=1}^{J-1} \frac{\exp(V_{ir_{ij}})}{\sum_{k=j}^J \exp(V_{ir_{ik}})}$$

The rank-ordered logit model sees the ranking exercise as a sequence of choices. The probability of a given ranking as the product of the $J-1$ conditional probabilities, with J is the total number of options to rank (Beggs et al., 1981). Consequently, The ROL model can be seen as a serie of MNL models : one for the most preferred option, another for the second ranked option preferred, one MNL for each ranking except for the last one.

As all the McFadden models, the coefficients are estimated using the method of maximum likelihood and errors term assumes to follow an "extreme value distribution of type I".

Consequently, like all the nominal regression models, ROL models assume the hypothesis of Independence of Irrelevant Alternative (IIA). This hypothesis means that the relative preferences between two options do not depend on other options available. In other words, adding an extra option does not change the relative probability of any other choices.

The assumption could be tested especially with Hausman-McFadden test (Hausman and Ruud, 1987).

However, according to Long, whatever the tests used they remain poor and he advises to refer to McFadden who advises to use these models when we can reasonably think that the option "can plausibly be assumed to be distinct and weighted independently in the eyes of each decision maker" which means that these types of models could be used when the options are not close substitutes (Long, 2014).

In addition, the ROL model assumes that the respondent applies the same decision weight at each stage. However, some authors (Chapman and Staelin, 1982) highlight that this assumption is not always hold. Indeed, it is possible that the least preferred option had been rank more randomly than the first because the respondent is not able to indicate his/her preferences or because he gives less importance to this last option than the first. However, the ROL model supports an incomplete ranking (Allison and Christakis, 1994) if the incomplete ranking concerns the less preferred option.

In addition, the ROL model is not reversible (Yellott, 1977). Indeed, if we compare two models, in the first the options are ranked from the most preferred to the least preferred and in the second from the least preferred to the most preferred. We will thus expect that only the sign of coefficients will be modified but it is wrong because he model is not

symmetric: inverting the coding of the options ranking modifies the entire model: the weights of the coefficients, but also the likelihood. The sensitivity to inversion is a consequence of the asymmetry of the extreme value distribution.

Several models have been developed to relax IIA assumptions imposed by nominal logit models: like the Alternative Specific Multinomial Probit (ASMP)

The difference between ASCL and ASMP model is the distribution of the random component, in ASMPROBIT the stochastic error terms are assumed to have a multivariate normal distribution that is heteroskedastic and correlated. Indeed, the inclusion of AS variables in a probit model allows to relax IIA assumption (Long and Freese, 2014). This model, contrary to Alternative Specific Conditional Logit, assumes that the errors are correlated due to the AS variables. With the same notation defined above, we have:

$$U_{ij} = x_{ij}\beta + z_i\gamma_j + \varepsilon_{ij}$$

$\varepsilon_i = (\varepsilon_{i1}, \dots, \varepsilon_{ij})$ is distributed multivariate normal with mean zero and covariance matrix Σ .

$$\varepsilon_i \sim \mathcal{N}(0, \dots, \Sigma)$$

$$\Sigma = \begin{bmatrix} \sigma_1^2 & \sigma_{12} & \cdot & \sigma_{1n} \\ \sigma_{21} & \sigma_2^2 & \cdot & \sigma_{2n} \\ \cdot & \cdot & \cdot & \cdot \\ \sigma_{n1} & \sigma_{2n} & \cdot & \sigma_n^2 \end{bmatrix}$$

When alternative-specific variables are not available, the MNPM is not identified. Moreover, even with alternative-specific regressors identification requires constraints on correlations among errors. Unfortunately, motivation for these constraints is often unavailable. Like to logit model it is possible to analyze the complete ranking with an alternative specific rank-ordered probit model with the same difficulties that the ASMP model. Due to this problem of specification, the model probit will not be used.

However, to relax the IIA assumption and to avoid the identification problem in probit model, it is possible to use the Nested Logit Model (NLM). NLM or Generalized Extreme Values Models has been developed by Train, (2003). This model is particularly relevant when it is possible to partition the choice into subsets, called nests. The NLM allows correlations between the choices of the same nest but the choices across different nests are independent. The NLM assumes that IIA hypothesis holds in each nest: the ratio of

probabilities between two options in the same nest is independent of the presence of all other options in the nest. In other words, if one option in the nest is removed, the ratio between two other probabilities will be unchanged but relaxes IIA hypothesis across nests. We considered a set of j choices which can be partitioned into K independent nests noted B_1, B_2, \dots, B_K . As usual, individuals choose the option with the highest utility. The utility that individuals n obtains from option j in nest B_k is noted: $U_{nj} = V_{nj} + \epsilon_{nj}$

The NLM assumes that the joint cumulative distribution of the error terms is written:

$$F(\epsilon_{n1}, \epsilon_{n2}, \dots, \epsilon_{nj}) = \exp\left(-\sum_{k=1}^K \left(\sum_{j \in B_k} e^{-\epsilon_{nj}/\tau_k}\right)^{\tau_k}\right)$$

With :

- j : the number of options
- Each unobserved utility ϵ_{nj} is independent with an extreme value distribution and are correlated within the nests
- $\text{cov}(\epsilon_{nj}, \epsilon_{nm}) = 0$ for any option $j \in B_k$ and $m \in B_l$ with $k \neq l$: the errors terms are uncorrelated between two different nests
- τ_k that represents a measure of the correlation of the error terms of all options within the nest B_k , is called dissimilarity parameter. Higher is τ_k lower is the correlation between options of the same nest and greater is the independence. If $\tau_k = 1$, options of the nest B_k are completely independent.

Finally, the probability that individual n choose option i from the choice set is:

$$P_{ni} = \frac{e^{V_{ni}/\tau_k} \left(\sum_{j \in B_k} e^{V_{nj}/\tau_k}\right)^{\tau_k - 1}}{\sum_{l=1}^K \left(\sum_{j \in B_l} e^{V_{nj}/\tau_l}\right)^{\tau_l}}$$

Nested logit probabilities can be expressed as the product of two simple logits:

$$P_{ni} = P_{nB_k} \times P_{ni/B_k}$$

With P_{nB_k} is the marginal probability of choosing an option in the nest B_k

P_{ni/B_k} is the conditional probability of choosing option i when the nest B_k is chosen.

In our context, it is possible to have two nests: the first nest hospital versus option structure and the second nest with home versus proximity structure (Figure 5).

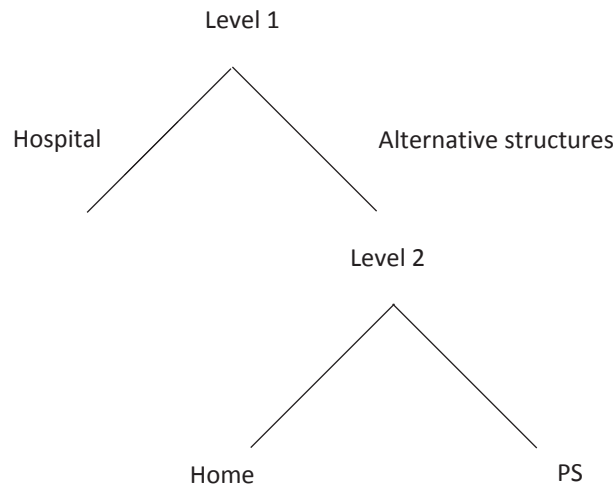


Figure 5 : Nested logit models with 2 levels in our context

Moreover, the Mixlogit model is also an option mentioned in the literature, but is not relevant in our case. Indeed, this type of model has been developed in the discrete choice experiment model where the options are defined with the same attributes, but with different levels which is not the case in our study.

Finally, two models have been used, the first is a ROL model with an alternative specific variable which is the experience of each place of care, and the second is a binary logit regression model where the dependent variable takes the value 0 if the patient prefers hospital and one if he prefers an option structure (home or proximity structure). Indeed, because few patients (n=19) have a preference for proximity structure, we decided to gather two modalities (for more information, the reader can see in Appendice 3 a nested logit model but the condition of applicability did not hold).

The initial model contains one variable measuring each of our hypotheses (Table 1).

To select the variables of our final model, a step by step procedure has been realized and only the variables which were significant at 10% have been kept. However, age, sex,

experience of place of care, and safety were forced into all multivariate models regardless of significant level.

4.4 Results

4.4.1 Description of the study population

Data collection was performed from June 2015 to January 2016. The survey had been proposed to 466 patients. Among them, 50 (10.7%) declined to participate and 14 (3%) did not meet the inclusion criteria. On the 402 remaining (86.3%), 11 gave incomplete answers or stopped at some point the questionnaire and 5 have been excluded because of computer bugs. Finally, 386 questionnaires have been analyzed (Figure 6).

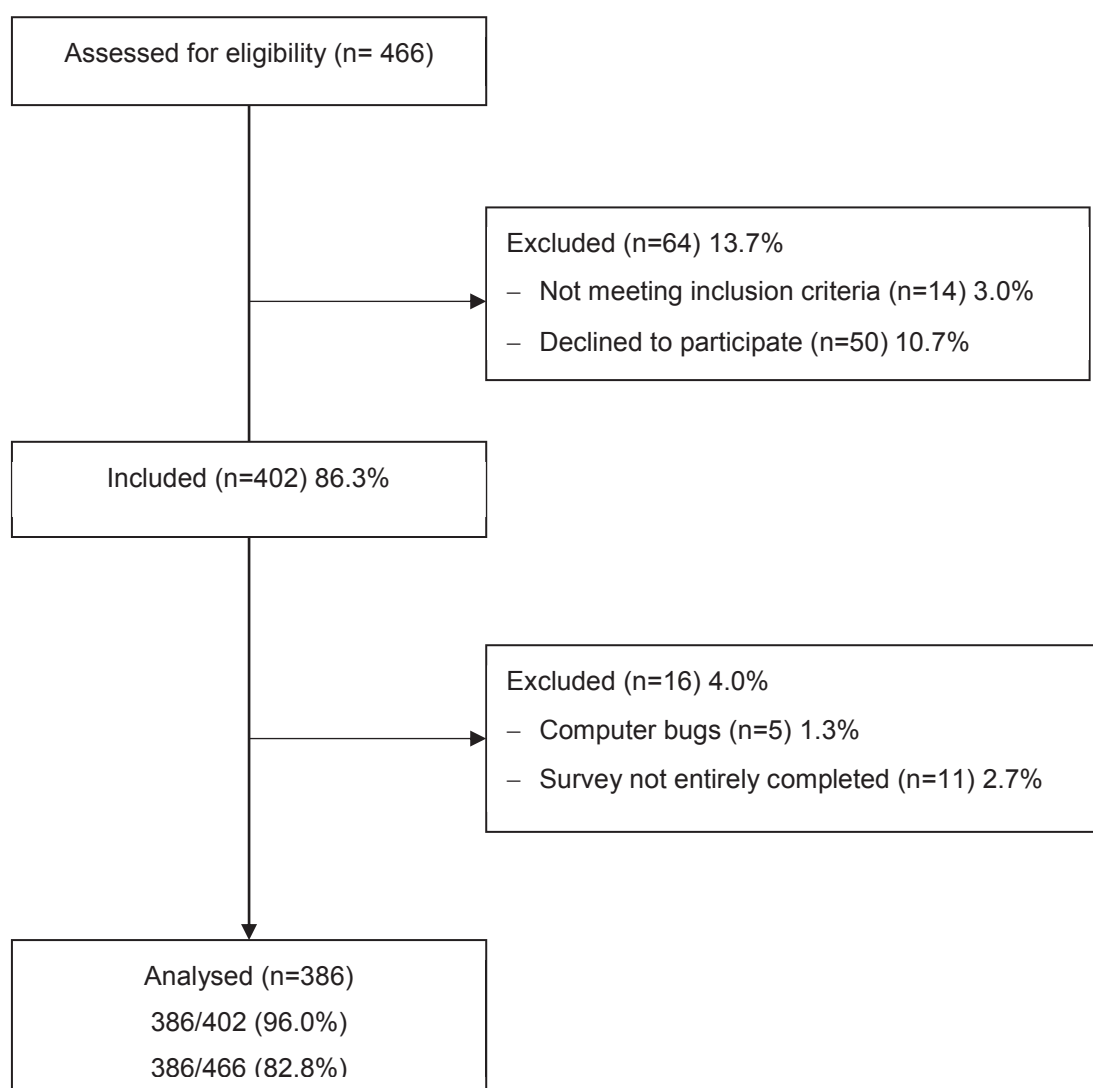


Figure 6 : Flow chart diagram

Table 2 Description of patients' characteristics according to inclusion hospital

Characteristics (n=386)	Total sample	CHUG (n=99)	CLB (n=139)	ICL (n=148)	p.value	
Age, years	59.8±13.3	60.6±12.9	56.6±13.5	62.3±12.7	0.0009	
Gender Male	45.6	38.4	46.0	50.0	0.197	
Partnered status (n=382)						
Not Partnered	27.5	26.3	31.8	24.3	0.349	
Partnered	72.5	73.7	68.2	75.7		
Education level (n=386)						
Primary school	25.6	21.2	21.01	33.1	<0.001	
Secondary	44.7	36.4	44.2	50.7		
University	29.6	42.4	34.8	16.2		
Employed at time of diagnosis (n=383)						
Employed	41.0	40.4	48.5	34.5	0.054	
Unemployed	59.0	59.6	51.5	65.5		
Occupational classification (n=385)						
Executives-upper intellectual professions	18.2	25.2	18.8	12.9	0.014	
Sales and customer service-managerial occupations	13.2	10.1	15.2	13.5		
Intermediate occupations	9.9	15.1	10.1	6.1		
Employees	34.6	34.3	29.0	39.9		
Factory workers-drivers	15.0	7.1	14.5	20.9		
Agricultural trades	1.6	1.0	1.5	2.0		
Others	7.5	7.1	10.9	4.7		
Household income/month						0.026
Under 600€	2.1	3.0	2.9	0.7		
600€ - 1000€	7.2	3.0	4.3	12.8		
1000€ - 2000€	30.1	23.2	28.8	35.8		
2000€ - 3000€	27.5	35.4	25.9	23.7		
3000€ - 5000€	19.4	23.2	20.9	15.5		
5000€ or more	4.9	4.0	6.5	4.1		
No response or do not know	8.8	8.1	10.8	7.4		
Children (n=384)					0.074	
No	14.8	9.1	19.7	14.2		
Yes	85.2	90.9	80.3	85.8		
Children at home (n=382)						
No	74.1	71.1	73.0	77.0	0.551	
Yes	25.9	28.9	27.0	23.0		
Number of persons living at home (n=380)					0.253	
1	21.5	17.3	27.6	18.2		
2	53.8	57.1	45.5	59.5		
3	12.3	9.2	14.9	12.2		
4	7.6	9.2	8.2	6.1		
>4	4.7	7.1	3.7	4.0		
Tumor site					<0.001	
Breast	19.8	22.5	21.1	17.0		
Prostate	6.6	2.0	1.5	14.3		
Colorectal	12.2	14.3	17.3	6.2		
UADT Upper Aero-Digestive Tract	7.7	1.0	5.3	14.3		
Lung	6.9	11.2	3.8	6.8		
Other urogenital cancer (uterus, ovary, kidney, bladder)	15.9	6.1	15.0	23.1		
Malignant hemopathies	14.8	25.5	18.8	4.1		
Pancreas	4.2	9.2	2.3	2.7		
Others cancers	11.9	8.2	15.0	11.6		
Distance from home to hospital						
Kilometers Mean ± SD	42.8±48.8	35.8±36.4	64.1±66.7	27.4±21.9	<0.001	
Time (minute) Mean ± SD	39.6±32.0	38.8±29.0	51.9±40.5	28.5±16.9	<0.001	

Descriptive statistics of patients' socio-demographic characteristics are presented in Table 2 experience of place of care are presented in the Table 9.

The mean age of the sample was 59.8±13.3, the youngest is 20 and the oldest 88. The majority of the sample was composed of women (54.4%), of patients unemployed at time of

diagnosis (59%), who had a partner (72.5 %) and children (85.2%) but only 25.9 % have children still at home. The mean distance from hospital to home was 42.8 ± 48.8 km. Less than a half of the sample (47.2 %) declared to have a good health despite of their cancer 24.3% a poor health and 13.5 % a very poor health (Table 3). A majority had a personal experience of home care in cancer (58.9%); but only 24.1% for heavy care (chemotherapy, antibiotics in infusion, enteral or parenteral feeding, blood transfusion, treatment against pain in infusion). Few people had an experience of proximity structure (4.7%) whatever the type of cares and 3.9% for heavy care (Table 9). As expected, the patients were significantly different at 5 % in term of age, education level, household income, occupational classification, and tumor site according to recruitment center (Table 2).

Table 3 Perceived health according to inclusion center (n=354)

%	Total sample	CHUG	CLB	ICL	P-VALUE
Excellent	4.8	4.55	5.2	4.6	0.083
Very good	10.2	12.50	10.3	5.3	
Good	47.2	47.73	49.6	44.3	
Poor	24.3	27.30	21.5	25.2	
Very poor	13.5	7.95	10.4	20.6	

4.4.2 Patients' preferences

A large majority of patients had a preference for hospital care for heavy care (chemotherapy and transfusion), respectively 75.5 % and 76.2%, whereas for lighter care (follow-up surgery care) 78 % had a preference for home care. The proximity structure was the less preferred option whatever the type of care (Table 4).

Table 4 Patient's preference depending on the type of care

Type of care	Hospital n (%)	Home n (%)	PS n (%)	Don't no/no response n (%)
Chemotherapy	291 (75.4)	84 (21.8)	10 (2.6)	1 (0.2)
Antibiotics in infusion	171 (44.3)	167 (43.3)	13 (3.4)	35 (9.0)
Enteral or parenteral feeding	182 (47.1)	150 (38.9)	12 (3.1)	42 (10.9)
Blood transfusion	294 (76.2)	46 (11.9)	11 (2.8)	35 (9.1)
Follow-up surgery care	61 (15.8)	301 (78.0)	5 (1.3)	19 (4.9)
Treatment against pain in infusion	160 (41.5)	190 (49.2)	8 (2.1)	28 (7.2)

When patients had to classify the option, the hospital was the most preferred option for 70.9 % of them versus 24.1 % for home care and only 5% for proximity structure (Table 5). Whatever their choices, the strength of their preferences, measured with VAS was always strong (Table 6).

Table 5 Order of patient's preferences

	Hospital n (%)	Home n (%)	PS n (%)
First choice (n= 382)	271 (70.9)	92 (24.1)	19 (5.0)
Second choice (n= 380)	73 (19.2)	152 (40.0)	155 (40.8)
Third choice (n= 380)	38 (10.0)	136 (35.8)	206 (54.2)

Table 6 Strength of preference for their first choice

Score on VAS	Hospital n=267	Home n=92	Proximity structure n=19
Mean \pm SD	8.0 \pm 1.7	7.9 \pm 1.5	7.0 \pm 2.1

4.4.3 Determinants of preferences:

Because few patients (n=19) had a preference for PS, we studied the determinants for hospital care compared to the other option: home and proximity structure together.

Univariate Analysis:

The patients who preferred alternative structures (home or PS) were younger, 56.5 years versus 61.2 \pm 12.3 years for hospital (p.value : 0.002). The proportion of patients who did not have children was higher (20.7%) for alternative structures versus for those who preferred hospital 12.6% (p.value : 0.045) and there were also less often alone at home (17.1%) as compared to those who preferred hospital (23%) (p.value : 0.027). Preferences were the same among the 3 different inclusion hospital (p.value : 0.321) (Table 7).

Patients who preferred hospital were less numerous to declare that they want to limit their trip (p.value <0.001), their waiting time (p.value :0.019) or that trip was painful for them (p.value <0.001) than those who prefer home care or proximity structure. Moreover, they were more numerous to declare that safety was better at hospital as compared to home 60.0 % versus 38.5% for patients' who preferred alternative structure (p.value < 0.001).

Patients who preferred an alternative structure were more numerous to declare that their family could take care of them (p.value : 0.076) and that they did not want to change their habits their way of life (p.value : 0.035) as compared to those who preferred hospital care.

Table 7 Patient's characteristics according to their preferred choice

Characteristics (n=382)	Hospital (n=271)	Alternative structures (n=111)	p.value
Age, years	61.2± 12.3	56.5± 14.8	0.002
Gender			
Male	126(46.5)	48(43.2)	0.562
Female	145(53.5)	63(56.8)	
Partnered status (n=378)			
Not Partnered	72 (26.9)	31(28.2)	0.794
Partnered	196 (73.1)	79(71.8)	
Education level (n=381)			
Primary school	70(25.8)	29(26.1)	0.928
Secondary	122(49.2)	48(43.2)	
University	78(28.9)	34(30.6)	
Employed at time of diagnosis (n=379)			
Employed	107(39.8)	48(43.6)	0.488
Unemployed	162(60.2)	62(56.4)	
Occupational classification (n=381)			
Executives-upper intellectual professions	45(16.7)	24(21.6)	0.741
Sales and customer service-managerial occupations	36(13.3)	14(12.6)	
Intermediate occupations	28(10.4)	10(9.0)	
Employees	98(36.3)	34(30.6)	
Factory workers-drivers	40(14.8)	17(15.3)	
Agricultural trades	5(1.85)	1(0.9)	
Others	18(6.7)	11(9.9)	
Household income/month			0.263
Under 600€	3(1.1)	5(4.5)	
600€ - 1000€	19(7.1)	9(8.1)	
1000€ - 2000€	88(32.8)	27(24.3)	
2000€ - 3000€	73(26.9)	30(27.0)	
3000€ - 5000€	53(19.6)	22(19.8)	
5000€ or more	14(5.2)	5(4.5)	
No response or do not know	21(7.7)	13(11.7)	
Children (n=380)			
No	34(12.6)	23(20.7)	0.045
Yes	235(87.4)	88(79.3)	
Children at home (n=378)			
No	208(77.6)	73(66.4)	0.023
Yes	60(22.4)	37(33.6)	
Number of persons living at home (n=381)			
1	61(23.0)	19(17.1)	0.027
2	149(56.2)	54(48.5)	
3	26(9.8)	20(18.0)	
4	15(5.7)	14(12.6)	
>4	14(5.3)	4(3.6)	
Tumor site			0.195
Breast	52(19.7)	21(19.1)	
Prostate	17(6.4)	7(6.4)	
Colorectal	27(10.2)	19(17.3)	
UADT	18(6.8)	11(10.0)	
Lung	15(5.7)	11(10.0)	
Other urogenital cancer (uterus, ovary, kidney, bladder)	46(17.4)	14(12.7)	
Malignant hemopathies	40(15.2)	16(14.5)	

Pancreas		13(4.9)	1.8(1.8)	
Others cancers		36(13.6)	9(8.2)	
Distance from home to hospital (n=386)				
Kilometers	Mean ± SD	42.7± 47.8	43.8± 51.8	0.837
Time (minute)	Mean ± SD	39.8± 32.5	39.6± 30.8	0.967
Inclusion hospital				
Grenoble University Hospital		70(25.8)	28(25.2)	0.321
Léon Bérard comprehensive cancer center		102(37.6)	34(30.6)	
Lucien Neuwirth comprehensive cancer center		99(36.5)	49(44.1)	

Table 8 Rate of agree or strongly agree responses according to patients' preferences (n=382)

		Hospital	Alternative structure	p.value
1	I want to limit my trips	73.1	90.1	0.001
2	I want to limit my waiting time	81.6	92.8	0.019
3	I want to stay close to my family	85.2	92.8	0.125
4	I want to change as little as possible my habits and my way of life	85.2	94.6	0.035
5	I want to separate place of care and home	72.7	36.0	0.000
6	I'm afraid of being a burden to my family	71.6	64.9	0.219
7	It is difficult for me to be with other patients	25.1	36.0	0.098
8	I feel alone to my home	22.1	14.4	0.140
9	I think that outside care gets to me to go out of my home and permit to see other persons	54.6	44.1	0.073
10	I think that home caregivers are more available	32.1	44.1	0.052
11	In case of additional costs related to my illness for my home care, I do not have the means to support them financially	53.1	57.7	0.713
12	It is difficult for me to make the daily tasks	50.6	49.6	0.303
13	Hospital is frightening	20.3	41.4	0.000
14	The trips are painful to me	24.4	45.1	0.000
15	I feel surrounded by my family and friends	88.9	92.8	0.517
16	I think my family can take care of me	66.8	78.4	0.076
17	I think that safety is better in a PS rather than at home	52.4	44.1	0.220
18	I had a bad experience in home care	4.4	0.9	0.042
19	Hospital is safer than home (n=369)	60.0	38.46	0.000
20	PS are less safe than hospital (n=344)	37.6	18.2	0.000

Table 9 Patients' experience of place of care according to their preferences (n=382)

	All sample n (%)	Hospital n (%)	Alternative structures n (%)	p.value
Patient personal experience of place of care				
For all type of cares in cancer ¹				
Home	225 (58.9)	156 (57.6)	69 (62.2)	0.407
Proximity structure	18 (4.7)	11 (4.1)	7 (6.3)	0.347
For heavy care in cancer ²				
Home	92 (24.1)	65 (24.0)	27 (24.3)	0.944
Proximity structure	15 (3.9)	11 (4.1)	4 (3.6)	0.835
Patients' relatives experience (All type of cares and pathologies)				
Home	107 (28.2)	77(28.6)	30 (27.3)	0.791
Proximity structure	46 (12.1)	36 (13.4)	10 (9.1)	0.246

1 Chemotherapy, Antibiotics in infusion, Enteral or parenteral feeding, Blood transfusion, following surgery care, Treatment against pain in infusion

2 Without following surgery care

Table 10 Patients' perceived health according to their preferred option (n=350)

	Hospital n (%)	Alternative structure n (%)	p-value
Excellent /Very good	41 (16.5)	11 (10.8)	0.354
Good	117 (47.2)	49 (48.0)	
Poor/ Very poor	90 (36.3)	42 (41.2)	

Multivariate analysis: Factors Associated with preferences

The estimation results of the ROL model are presented in Table 11. Odds are not available on STATA but it is possible to calculate the variation of the odd in percent with the following formula : $100 * (\exp(\beta_k) - 1)$ (Long and Freese, 2014). All other things being equal, patients having a good ($p=0.001$), a poor or a very poor ($p=0.003$) quality of life have a higher odd than patients who have an excellent or very good quality of life to rank home before hospital. Moreover, the willingness to preserve his/her habits and lifestyle ($p=0.011$) and to avoid the trips ($p<0.001$) increases the odds to rank home before hospital by 227% and 366% respectively. Thinking that hospital is frightening increases the odds to rank home before hospital by 156%. The willingness to separate home and place of care ($p<0.001$) and to think that household daily tasks are difficult ($p=0.021$) decrease the odds to rank home before hospital, holding other variables constant by 89% and 47% respectively. Additionally, the

factor associated with preferences for PS is the distance from home to hospital, since increasing the distance by one kilometer increases the odds to rank PS before hospital by 0.8%. Independently of the distance from home to hospital, the willingness to avoid trip increases the odds to rank PS before hospital by 450% ($p < 0.001$).

Safety is only significant for PS versus hospital, ($p = 0.005$) since thinking that PS is less safe than hospital decreases the odds to rank PS before Hospital by 65%, thinking that home is less safe than hospital was not significant. Both having an experience of care in the different places and the socio demographic characteristics do not have any significant impact on preferences. However, these results must be interpreted with caution because the ROL models do not hold the IIA assumption.

Several models have been tested, in particular an Alternative Specific Logit Model and a Nested Logit Model both using only as dependent variable the preferred option. Unfortunately, these models did not converge or did not hold the condition of applicability because too few patients ($n = 19$) had a preference for PS. Finally, we decided to use a binary logit model which compares hospital versus alternative structures (home and PS) Table 12.

If patients wanted to limit their trips ($p = 0.004$) and preserve their habits and lifestyle ($p = 0.013$), their odds to prefer alternative structure are respectively 3.3 and 3.7 times higher than other patients. If a patient is afraid by hospital, his odds to prefer alternative structures is 2.4 times higher than a patient who is not afraid by hospital, holding all other variables constant ($p = 0.003$). Wanting to separate home and place of care decreases the odds of preferring alternative structure by a factor of 0.21 ($p < 0.001$). To think that PS is less safe than hospital decreases the odds to have a preference for an alternative structure by a factor of 0.5 ($p = 0.059$). Like ROL model, the safety between home and hospital is not significant ($p = 0.327$).

Table 11 Rank ordered logit model to analyze the determinants of patients' preferences

	Coef	Std. Err	P-value	ΔOdds %
Alternative specific variable				
Experience of care (Yes) ref No	0.143	0.200	0.473	15.4
Home care (ref hosp)				
Female	0.083	0.272	0.761	8.6
Age	-0.014	0.011	0.201	-1.4
Education				
Secondary (ref primary)	-0.626*	0.338	0.064	-46.5
University (ref primary)	-0.501	0.395	0.204	-39.4
PS less safe than hospital				
Yes	-0.584*	0.352	0.098	-44.2
Missing	-0.251	0.494	0.611	-22.2
Home is less safe than hospital				
Yes	-0.428	0.309	0.166	-34.8
Missing	1.792**	0.727	0.014	500.0
Distance from home to hospital (km)	0.005*	0.003	0.063	0.5
Avoid the trips (agree)	1.541***	0.423	0.000	366.9
Preserve his/her lifestyle (agree)	1.188**	0.467	0.011	227.9
Separate home and place of care (agree)	-2.239***	0.284	0.000	-89.3
Avoid to be a burden for my relatives (agree)	-0.529*	0.302	0.079	-41.1
Avoid meeting other patient (agree)	0.182	0.295	0.537	20.0
To be afraid to be alone at home (agree)	-0.655*	0.359	0.068	-48.1
Daily task could be difficult (agree)	-0.642**	0.278	0.021	-47.4
Hospital is frightening (agree)	0.940***	0.306	0.002	156.1
QoL(ref Excellent/very good)				
Good	1.443***	0.447	0.001	323.2
Poor/Very poor	1.411***	0.477	0.003	310.1
Missing	0.624	0.656	0.342	86.6
Constant	-1.693*	0.965	0.079	-81.6
PS (ref hosp)				
Female	0.204	0.276	0.461	22.6
Age	0.000	0.011	0.968	0.0
Education				
Secondary (ref primary)	-0.580*	0.347	0.094	-44.0
University (ref primary)	-0.102	0.396	0.797	-9.7
PS less safe than hospital				0.0
Yes	-1.044***	0.372	0.005	-64.8
Missing	0.127	0.472	0.788	13.5
Home less safe than hospital				
Yes	-0.053	0.311	0.863	-5.2
Missing	1.348*	0.719	0.061	285.2
Distance from home to hospital (km)	0.008***	0.003	0.002	0.8
Avoid the trips (agree)	1.708***	0.447	0.000	451.6
Preserve its lifestyle (agree)	-0.015	0.461	0.974	-1.5
Separate home and place of care (agree)	-1.147***	0.290	0.000	-68.2
Avoid to be a burden for my relatives (agree)	-0.380	0.310	0.221	-31.6
Avoid meeting other patients (agree)	0.495*	0.298	0.097	64.1
To be afraid to be alone at home (agree)	-0.308	0.353	0.383	-26.5
Daily task could be difficult (agree)	-0.117	0.282	0.677	-11.1
Hospital is frightening (agree)	0.706**	0.311	0.023	102.6
QoL(ref Excellent/very good)				
Good	0.949**	0.447	0.034	158.3
Poor/Very poor	0.859*	0.476	0.071	136.2
Missing	0.091	0.683	0.894	9.5
Constant	-3.235***	1.011	0.001	-96.1
N		363		
AIC		967		
BIC		1182		
ll		-440.6		
chi2		416***		

* p<0.10, ** p<0.05, *** p<0.01

Table 12 Logit regression analysis: patients' preferences for alternative structure (home care and proximity structure) versus hospital

	Coef.	Std. err.	p-value.	Odds	Std. err.of odds
Female	0.164	0.278	0.554	1.179	(0.327)
Age	-0.019*	0.011	0.077	0.981*	(0.0108)
PS less safe than hospital					
Yes	-0.686*	0.364	0.059	0.503*	(0.183)
Missing	0.191	0.477	0.689	1.211	(0.578)
Home less safe than hospital					
Yes	-0.297	0.303	0.327	0.743	(0.225)
Missing	1.656**	0.775	0.033	5.241**	(4.061)
Avoid the trips (agree)	1.198***	0.416	0.004	3.313***	(1.378)
Preserve his/her lifestyle (agree)	1.309**	0.528	0.013	3.702**	(1.955)
Separate home and place of care (agree)	-1.553***	0.286	0.000	0.212***	(0.0606)
Avoid to be a burden for my relatives (agree)	-0.535*	0.310	0.084	0.586*	(0.181)
Hospital is frightening (agree)	0.879***	0.296	0.003	2.408***	(0.712)
Experience of home care (Yes) ref No	-0.000	0.282	0.999	1.000	(0.282)
Experience of PS (Yes) ref No	-0.055	0.614	0.929	0.947	(0.581)
QoL(ref Excellent/very good)					
Good	0.978**	0.455	0.032	2.658**	(1.209)
Poor/Very poor	0.868*	0.477	0.069	2.383*	(1.137)
Missing	0.323	0.670	0.629	1.382	(0.926)
Constant	-1.568*	0.895	0.080	0.208*	(0.187)
N. of cases			368.000		
AIC			380.321		
BIC			446.759		
ll			-173.161		
chi2			100.88***		
Correctly classified			79.4%		
area under ROC curve			0.81		

* p<0.10, ** p<0.05, *** p<0.01

*Response were dichotomized according to the following rules ; disagree or strongly disagree (0) versus agree and strongly agree (1)

4.5 Discussion

Since several years now, French healthcare policy decision makers try to develop alternative structures to hospitals considered as expensive, saturated and far away from patients. Home care and more recently proximity structures are presented as promising alternatives and priorities, but paradoxically, their development is slow. Our aim was to explore patients' preferences for these places of care in the applied field of cancer to see whether they match or not with the healthcare policy goals in the area strengthened by patients' autonomy desire.

Besides, the ethical requirement, patient's preferences could improve the quality of his healthcare management. Indeed, in the context of our study if the patient is managed in a place where he does not want to be, this could both increase his anxiety and the use of care (like emergency or unplanned hospitalizations if one has decided for him to stay at home rather than in hospital).

Our results show that if a patient has to choose a unique place for the management of his care, 71% would choose hospital, 24% home and only 5 % PS. The main reasons to prefer hospital seem to be the wish to separate home and place of care and safety reason (Hospital is safer than PS). Neither socio-demographic characteristics, nor even experience of care seem to explain patients' preferences. Indeed, according to our results patients who have already benefited from home care had no higher odds to prefer this option whatever the variables used to measure experience. To our knowledge, the large majority of studies on patients' preferences for a place of care are focused on palliative care and more precisely the place of death. The meta-analysis of Gomes and Higginson (2006) found a preference for home care at the end of life for more than 50% of patients.

Our survey has been conducted on cancer patients in three hospitals, during their treatments at hospital. Consequently, the representativeness of our study could be discussed. Indeed, this could induce an over-representation of patients who preferred hospital care, because patients in home care were not interrogated. In reality, whatever the place of care, the patient always returns back to hospital at a moment of his management of care. 24% of our sample had an experience of home care in the treatment of their cancer, this figure is high as compared to the proportion of chemotherapy realized at home. Indeed,

to avoid the bias linked to where we conducted the survey and to study patients who already had an experience of home care, we corrected the sample and targeted patients. Moreover, no selection has been realized except for the fact that patients had to speak and understand French language. However, it is difficult to estimate the representativeness of our sample due to the difficulty to define clear criteria of representativeness which could be linked to the type of cancers, the stage of the disease, type of care.

Moreover, concerning the low proportions of patients who preferred PS, our study clearly showed that is too difficult for them to project themselves in a hypothetical situation, and even if proximity structures are currently in development, they are still unknown to most patients.

Finally, despite the aim of French policy makers to develop alternative structures to hospital, they are still under-developed. Although, a large majority of patients preferred hospital, a quarter was ready to have care at home. This proportion is largely higher than the level of development of home care. This suggests that hindrances to develop alternative structures to hospital do not come from patients' reluctance to benefit from them, but more from supply actors. One explanation factor from the supply point of view could be linked to the cost production of home care as compared to hospital care and the rates associated to each stay. Today, for an hospital this production cost for home care is hard to calculate due to the heterogeneity of the management of care (Buthion, 2015). It is not sure that a hospital has a great interest to incite patients to go back home especially if the hospital has developed day care. Moreover, the development of oral chemotherapies could impact the development of alternative structures.

Keys results:

- High proportion of patients who preferred hospital (71%)
- Low proportion of respondents who preferred PS (5%)
- No impact on preferences from experience of care and socio-demographics characteristics
- Safety variables:
 - 60% of patients who preferred hospital thought that safety is better at hospital as compared to home versus 38.5% for patients who preferred alternative structures. This result was not significant in multivariate analysis.
 - 37.6% of patients who preferred hospital thought that safety is lower in PS as compared to hospital versus 18.2 % for patients who preferred alternative structures. This result was significant in multivariate analysis.
- The other variables which strongly explained the preferences in both models (Logit and ROL) are:
 - Increase the odds to prefer home care
 - Avoid trips (agree)
 - To preserve his/her lifestyle (agree)
 - Hospital is frightening (agree)
 - Decrease the odds to prefer home care
 - Separate home and place of care (agree)
 - Avoid being a burden for my relatives (agree)

5 Chapter 3: Contingent valuation survey

5.1 Introduction

Historically, CV has been developed to elicit market valuation of a non-market good/service. The aim of a CV survey is to collect the consumer's WTP to obtain the good/service or WTA to give it up. This method has the advantage to value the use value, option value and externalities. It is for this reason that CV has been widely used in environmental economics and transport economics. Besides, the first recommendations concerning CV have been developed by the National Oceanic and Atmospheric Administration (NOAA) panel to estimate damages caused by the Exxon Valdez oil spill in 1993. In health, the CV method has been used later and few studies have used its potentialities. A large majority of studies only elicit the WTP in an *ex-post* context or at the point of consumption. Indeed, CV surveys are mainly developed among patient population. However, one can wonder whether it is relevant or not, to ask patients their WTP in a publicly funded healthcare system like in France where out-of-pocket represents less than 8.4% of the consumption of care and of medical goods (DREES, 2017b). This could explain the large proportion of protest responses generally observed in WTP surveys. Moreover, the WTP method is generally considered as a measure of preference, but WTP is largely impacted by budget constraints.

Anyway, anticipating population's WTP and preferences could improve the efficiency of public policy especially in healthcare. In this way, our study sought to elicit option value associated with home care and proximity structures versus hospital care using a decision aid integrating a contingent valuation (CV) survey. More precisely, our objectives were:

- To elicit population's preferences and their reasons for home care and proximity structures vs hospital.
- To test the acceptability and validity of CV method in France in the context of option value :
 - o To analyze the correlation between declared preferences and WTP
 - o To study protest responses and their determinants
- To test numerical certainty scale in the context of PC elicitation format.

5.2 Survey design and data collection:

Presentation of the survey

Our survey was composed of five main sections:

(1) The first section included a sociodemographic and an experience of care questionnaire. It also included questions about respondent's risk of cancer perceptions, the cost of his insurance premium and distance from home to hospital.

(2) The second section was composed of the decision aid (previously presented in Chapter 2) to explain the 3 disease management options (hospital care, home care, proximity structure) and the CV survey. Decision aids are generally used to help patient to elicit their preferences for different treatment options, but they can also be adapted to be used in the context of CV survey to improve the quality of the information provided (Matthews et al., 2002). This point is particularly interesting when we consider scenarios in CV method and more generally the question of how to provide information (Smith, 2008). Because we presented the decision aid in the previous chapter, we focus here on the CV survey, but we should underline that (i) to avoid distal ordering effect, the 3 options were randomly presented; (ii) to check the understanding of the information, a comprehension questionnaire was included.

Information provided in the CV survey has been developed and pre-tested with clinicians and a convenient sample composed of lay individuals. The CV survey was divided into 3 scenarios from curative to heavy (palliative) care at hospital/home/in proximity structures. These 3 scenarios were presented consecutively (see Figure 7 : Short description of each scenario).

After each scenario, the respondent has first to classify the options from the most preferred to the less preferred and then to indicate with Visual Analog Scales (VAS) the strength of his preference for each one. To study the determinants of preferences, a questionnaire about attitudinal questions related to cancer management had been added. Attitudes were elicited by presenting statements to respondents and asking them to indicate their responses on a scale from strongly disagree (=0) to strongly agree (=1). These statements were driven from

previous qualitative study conducted previously among patients (Havet et al., 2011, 2012; Remonnay, 2008).

Scenario 1	Your management of care would consist essentially of short chemotherapy (<1 hour) every months for 6 to 12 months.
Scenario 2	Your management of care would consist essentially of <i>medium or long chemotherapy (2 to 6 hours) for five consecutive days for 6 to 12 months.</i>
Scenario 3	<p><i>Your management of care would consist in various more or less frequent treatments to suit your needs such as:</i></p> <ul style="list-style-type: none"> • A short or long chemotherapy • A treatment against pain in infusion • An antibiotic in infusion • Enteral or parenteral feeding • A blood transfusion

Figure 7 : Short description of each scenario

(3) The third section contained the CV question: WTP for home care/proximity structures. The WTP question was asked only to respondents who declared using VASs to prefer home care or proximity structures. For examples, if a respondent preferred home care in scenario one, proximity structure in scenario 2 and hospital in scenario 3, two questions of WTP were asked, one to benefit from home care in scenario 2 and the other to benefit from proximity structure in scenario 2. In other words, if a respondent preferred hospital for each scenario, no WTP questions were asked since in French healthcare system a cancer management at hospital could be considered as the default option. It thus appeared irrelevant to ask respondents their WTP for hospital. We were more interested in knowing respondents' willingness to pay to develop an alternative option, i.e. home care or proximity structure. Including in the pre-test, we asked whether the information was understandable and trustworthy or not using face-to-face interviews with clinicians and lay individuals. In addition, to define the range of values included in the payment card, we conducted a pre-test among 100 individuals in real life situation.

Each option of care was presented as 3 complementary scenarios using an advanced disclosure approach to avoid sequential effect. Then, we asked respondents to rank the options (hospital, home care, proximity structure) from the most preferred to the least

preferred. We asked finally respondents to give their strength of preference only for their preferred option using a VAS.

(4) In the fourth section, we asked respondents to give their WTP for each scenario using a payment card.

(5) In the last section, we asked the willingness to pay for others (not including respondents' families) for home care and proximity structures whatever the respondent's preferences, to measure altruism. The WTP questions were randomly asked to avoid embedding effect. We nonetheless do not present here the results of this section.

5.2.1 Design of the contingent valuation survey:

a) Elicitation format of WTP: Payment card

The respondents were asked to indicate their maximum willingness to pay with the use of a vertical payment card where the amount payment bids ranged from 0 to 25 euros with the possibility to give another amount. These amounts came from the pre-test administrated online by the national survey institute Research Now among 100 individuals from the general population. In this pre-test, the payment card amounts were fixed from 0 to 15€ (Table 13). The median WTP were between 5 and 10 according to scenarios (respectively lightest and heaviest scenario) and less than 2% of individuals gave another amount higher than 15€. We decided to include two additional amounts, 20 and 25.

If respondents indicated zero WTP, they were asked to explain their response by ticking the most important reason proposed in a given list. This question was displayed in a new window and was exposed only after the valuation question had been answered. Thus, the pre-defined explanations could not influence valuations. The proposed reasons that respondent could provide were: (1) I cannot afford to pay, even if I would like to benefit from the service. (2) If hospital care is free, I prefer to be cared in hospital, (3) I did not understand the question, (4) There is not enough information for me to choose (5) I refuse to pay for care, (6) Others. We added this list of explanations because as stated by Johnson et al (2006), we have to tradeoff between conducting a statistically efficient survey and a survey that respondents can understand.

Table 13 Payment card used in CV survey

How much are you willing to pay at maximum by month per household to benefit from home/ PS in case of cancer?

Maximal amount	
1	0€
2	1€/month/household (or 12€/year)
3	2€/month/household (or 24€/year)
4	3€/month/household (or 36€/year)
5	5€/month/household (or 60€/year)
6	8€/month/household (or 96€/year)
7	10€/month/household (or 120€/year)
8	15€/month/household (or 180€/year)
9	20€/month/household (or 240€/year)
10	25€/month/household (or 300€/year)
11	Other amount higher Please specify.....

b) General design: Follow-up question and cheap talk

A *follow-up* question and a *cheap talk* had been added to mitigate the divergence between real and hypothetical payments called hypothetical bias (Cummings et al., 1986). Several authors showed that using a *follow-up* question based on a numerical certainty scale from 0 to 10 to measure the degree of certainty of the WTP response could mitigate hypothetical bias (Blumenschein et al., 2008; Champ et al., 2009, 1997; Johannesson et al., 1998; Li and Mattsson, 1995; Moore et al., 2010; Morrison and Brown, 2009). Moreover, adding a script to emphasize the importance for the interviewers of the respondent's answers, ie *cheap talk*, could also reduce the hypothetical bias especially in -sub-populations like inexperienced or least informed (List and Gallet, 2001; Lusk, 2003) individuals (Aadland and Caplan, 2003), which could be the case in our population.

Payment vehicle & periodicity choice:

Both vehicle of payment and periodicity of payment could impact the WTP, but also the proportion of protest zeros (Bateman et al., 2005; Gyrd-Hansen et al., 2014; Morrison et al., 2000). A consensus seems to exist on the choice of the vehicle of payment which could be realistic and neutral (Mitchell and Carson, 1989). Moreover, Carson et al. (2001) found that the payment vehicle could be regarded as trustworthy by respondents if it could convince them that the result of the study could be useful, and thus decrease the hypothetical bias. In healthcare, three types of payment vehicle are possible:

(1) The *out-of-pocket* payment, but it has the disadvantage to be associated to the moment of consumption of the good or service. In our study, we were in an *ex-ante* evaluation, thus the *out-of-pocket* was not relevant.

(2 & 3) The private insurance premium and an income tax. Even if a tax is generally associated with a high rate of protest responses (Champs et al. 1997), we decided to use it as vehicle of payment because in France more than 75% of the healthcare spending is collectively funded. This proportion is even higher in cancer. Moreover, the pre-test results did not underline any specific protest about this type of payment vehicle.

Some studies found that the periodicity of the payment vehicle could have an impact on the WTP (Stevens et al.; 1997; Kim and Haab. 2003). It has been demonstrated that a monthly periodicity conducts to a higher WTP than an annually periodicity (Andersson. 2013; Gyrd-Hansen et al. 2014; Johannesson et al. 1993; Soliño et al. 2009). To avoid this *framing effect* and because in France the tax could be paid monthly or annually/quarterly, we decided to adopt the method used by Champ & Bishop (2006), but not yet assessed, ie. to present both the monthly payment and its annually equivalent. We thought that this presentation could allow respondents to improve their estimation of the opportunity cost associated to the funding of the options.

To summarize, the payment vehicle was a monthly increase in income tax (*"How much are you willing to pay per month per person of your household to benefit from [the respondent preferred option was inserted] ?*) the annually equivalent was also presented.

The duration of the payment was not mentioned since several studies showed that respondents are generally insensitive to it because of their high discount rate (high

preference for short term) (Bond et al. 2009; Kim. 2011; Stevens et al. 1997; Stumborg et al. 2001).

Population :

Respondents were those at future risk of cancer, thus excluding cancer patients. Our aim was to elicit the option value to benefit from home care of proximity structures for the management of cancer. We were in the context of an *ex-ante* insurance-based approach like recommended by O'Brien & Gafni (1996). Our population was thus the general population. Participants were recruited by a national survey institute, Research Now. They could reach the online questionnaire by clicking on a link included in the invitation e-mail. To participate, respondents had to be 18 years and over. The study had been conducted among a sample of 1001 individuals representative of the Rhone-Alps Region. Because we previously conducted the survey among cancer patients living in the Rhône-Alps Region, it was important to conduct the CV survey among a representative sample of individuals living too in the Rhône-Alpes region, allowing us to compare the use value to the option value.

The sample had been developed with the quota method on sex, age, socio-professional category and department criteria. The sample size had been calculated to have a maximum marginal error of 3.5%. Each respondent had been payed 2 euros for his participation to the survey.

5.2.2 Analysis of preferences

To study determinants of preferences, we used Alternative Specific Conditional Logit (ASCL) and Rank Ordered Logit model (ROL). Moreover, because these models do not hold the IIA assumption, we did a Nested Logit Model, the specification for these 3 models was the same than for the patient analysis (Figure 5).

Each model had 3 alternatives specific variables: experience of place of care, perception of safety and presentation order for each option. For alternative specific variable values vary across options, but only one parameter for the effect of the variable has been estimated.

$$y_{ij} = \begin{cases} 1 & \text{si } y_i = j \\ 0 & \text{otherwise} \end{cases}$$

In the ASCL model: y takes the value one if the respondent i choose the option j , 0 otherwise.
 For the ROL model: y is the probability that individual i place the option j before an option k ,
 for the NL model y take the value 1 if respondent choose alternative structure (home or PS),
 0 if choose hospital. The equation estimated is the follow:

$$y_{ij} = ASV1_{ij}\beta_{order} + ASV2_{ij}\beta_{exp} + ASV3_{ij}\beta_{safe} + z_i\gamma_j + \varepsilon_{ij}, j=1,2,3$$

Our model contains three alternative specific variables. For these variables, the coefficients estimated do not vary across options, only one coefficient is estimated.

- $ASV1_{ij}$ represents the order of presentation of the option j for individual i , the associated coefficient β_{order} represents the impact of the order of presentation on the choice/ranking.
- $ASV2_{ij}$ is took the value 1 if the respondent i have already experimented the option j 0 otherwise, *with* β_{exp} the associated coefficient
- $ASV3_{ij}$ contains the ranking of the option j by individual i in the safety ranking, the associated coefficient β_{safe} represents the impact of the safety ranking on the choice/ranking of the options
- z_i represents characteristics of the individuals that are constant across options: like socio-demographic characteristics, attitude toward options, γ_j is a set of coefficients contains the effects of the variable z on the choice j but the j coefficients vary over options.
- ε_{ij} is an error assumed independent and identically distributed (IID)

5.2.2.1 Results

a) *Sample characteristic*

The web-based survey was conducted between January and February 2017. Respondents were randomly selected from the internet national survey institute panel, Research Now. A total of 1046 individuals have been invited to participate. 95.7% accepted to participate corresponding to a sample of 1001 respondents, 45 declined to participate unfortunately it was not possible to have reasons. We focus here on a random sub-sample of 800 respondents who responded with a payment card, the other 201 individuals had an alternative elicitation method of WTP, a Multiple Dichotomous Bounded Choice that we tested, but that we do not present in our thesis. We tested the comparability of the two samples and found no significant difference: the socio-demographic characteristics were identically distributed in the two samples (Chi2 Test). Respondents' characteristics are presented in Table 14 Respondents were 46 ± 14.7 years old on average. More than a half had a university degree and were fully time employed. A quarter had a post-tax net annual household income under than 21.000€. A large majority, 92.2%, had a private additional health insurance. Only 4.5 % of the respondents declared to live more than 30 kms far from to the nearest hospital and more than a half did not know if a proximity structure was available nearest where they live.

Table 15 provides respondents' experience of care: 73.1% have already been hospitalized and 35.6% already experienced home care whatever the pathology. Concerning cancer, 55.1% knew a relative who had already had cancer. Only 5.2 % of the respondents have already been treated for cancer and 1.2% were still under treatment.

Table 14 General population sample characteristics

Characteristic (N=800)	Mean (sd) or n (%)
Gender Male	377 (47.1%)
Age years mean (sd)	46.0 (14.7)
Education degree	
Primary	38 (4.8%)
Secondary	310 (38.8%)
University	452 (56.5%)
Employed (Yes)	481 (60.1%)
Socio-professional category	
High	238 (29.8%)
Low	260 (32.5%)
Inactive	302 (37.8%)
Employment status	
Full-time	424 (53.0%)
Part-time	57 (7.1%)
Retired	161 (20.1%)
Unemployed	120 (15.0%)
Student	38 (4.8%)
Living with a partner Yes	569 (71.1%)
Children (<18 years) at home (Yes)	271 (33.9%)
Annual household income	
<21.000€	204 (25.5%)
21.000€ to <36.000€	243 (30.4%)
>36.000€	296 (37.0%)
Missing	57 (7.1%)
Public health insurance Yes	129 (16.1%)
Private additional health insurance Yes	738 (92.2%)
What is the price of this? (month/person)	
<30€	125 (16.9%)
30€ to 50€	180 (24.4%)
50€ to 70€	105 (14.2%)
70€ to 100€	125 (16.9%)
>100€	115 (15.6%)
Do not know	88 (11.9%)
Distance from home to hospital	
<5 km	274 (34.2%)
5 km to 15 km	280 (35.0%)
15 km to 30 km	196 (24.5%)
>30km	50 (6.2%)
Do you have a proximity structure close to your home?	
Yes	201 (25.1%)
No	189 (23.6%)
Do not know	410 (51.2%)
Distance from home to proximity structure (n=200) km	
<5 km	81 (40.3%)
5 km to 15 km	86 (42.8%)
15 km to 30 km	25 (12.4%)
>30km	9 (4.5%)
Mental Quality of life : To be sad these two last weeks	
Never	437 (54.6%)
Several days	267 (33.4%)
More than the half of days	60 (7.5%)
Almost Every day	36 (4.5%)
Quality of life on VAS from 0 to 10 mean (sd)	8.5 (1.7)

Table 15 GP's experience of care

	n (%)
Personal experience	
Hospital	
Yes	585 (73.1%)
No	215 (26.9%)
Hospital with length of stay >5 days	
Yes	358 (61.2%)
No	227 (38.8%)
Cancer	
Yes	42 (5.2%)
Yes under treatment	10 (1.2%)
No	739 (92.4%)
I do not wish to answer this question	9 (1.1%)
Individual perception of cancer risk at 10 years	
High or very high	158 (19.8%)
Moderately high	251 (31.4%)
Low or very low	161 (20.1%)
Do not know	230 (28.8%)
Home care	
No	515 (64.4%)
Yes	285 (35.6%)
Home care for heavy cares in cancer	
No	790 (98.8%)
Yes	10 (1.2%)
Home care for heavy cares	
No	753 (94.1%)
Yes	47 (5.9%)
Proximity structure in cancer	
No	796 (99.5%)
Yes	4 (0.5%)
Proximity structure for heavy cares in cancer	
No	796 (99.5%)
Yes	4 (0.5%)
Respondent's relatives experience	
Relatives who has already had a cancer	
Yes	441 (55.1%)
No	350 (43.8%)
I do not wish to answer this question	9 (1.1%)
Home care for cancer	
No	650 (81.2%)
Yes	150 (18.8%)
Proximity structure for cancer	
No	776 (97.0%)
Yes	24 (3.0%)
Home care	
No	391 (48.9%)
Yes	409 (51.1%)

b) Attitudes toward options and cancer

Hospital was perceived as the safest place by 71.4% (Table 16) of respondents as compared to home (16.2%).

Table 17 shows respondents' attitudes towards cancer and its management. More than a half (54.9%) of respondents declared that they would like to separate the place where they live from the place of care, 57.6% were afraid by hospital and 52.4% thought it would be difficult to stay with other patients. A large majority would like to limit their trips and are afraid to be a burden for their families (respectively 85.8% and 79.1%).

Table 16 Ranking of safety according to the place of care

	Hospital	Home care	Proximity structure
The safest	571 (71.4%)	130 (16.2%)	99 (12.4%)
The second safest	111 (13.9%)	159 (19.9%)	530 (66.2%)
The least safe	118 (14.8%)	511 (63.9%)	171 (21.4%)

Table 17 GP's attitude towards statements (if I have a cancer...)

	Frequency (%)	
	Disagree	Agree
I would like to limit my trips	114 (14.2%)	686 (85.8%)
I would like to limit my waiting time	55 (6.9%)	745 (93.1%)
I would like to stay close to my family	83 (10.4%)	717 (89.6%)
I would like to change as little as possible my habits and my way of life	97 (12.1%)	703 (87.9%)
I would like to separate place of care and home	361 (45.1%)	439 (54.9%)
I'm afraid of being a burden to my family	167 (20.9%)	633 (79.1%)
It is difficult for me to be with other patients	381 (47.6%)	419 (52.4%)
I feel alone in my home	424 (53.0%)	376 (47.0%)
I think that outside care allows to see other persons	191 (23.9%)	609 (76.1%)
I think that home caregivers are more available	329 (41.1%)	471 (58.9%)
In case of additional costs related to home care. I do not have the means to support them financially	278 (34.8%)	522 (65.2%)
It is difficult for me to make daily tasks	154 (19.2%)	646 (80.8%)
Hospital is frightening	339 (42.4%)	461 (57.6%)
The trips are painful to me	159 (19.9%)	641 (80.1%)
I think my family can take care of me	291 (36.4%)	509 (63.6%)
I had a bad experience in home care	712 (89.0%)	88 (11.0%)
I had a bad experience in hospital care	621 (77.6%)	179 (22.4%)
I think my home is not adapted to care	416 (52.0%)	384 (48.0%)

c) *Comprehension questionnaire*

The mean score of comprehension about options (hospital, home, proximity structure) was 8.9 ± 1.8 (median 9, IQQ [8-10]) underlining a good overall comprehension.

d) *Ranking of scenarios*

As showed in Figure 8, the preferred option for scenario 1 (light scenario) was home care for 46.1 % of the respondents, hospital for 35.1% and PS for 18.7%. For scenario 2, proportions are balanced between hospital and home care with respectively 37.0 % and 38.1% of respondents who have chosen these options as the first choice. For scenario 3 (heavy care), hospital was the first choice for a large majority of respondents (49.1%), followed by home care (29.5%). Whatever the scenario, PS was the option which have the lower proportion of respondents who preferred it as first choice.

A two-way ANOVA showed that the strength of preference was significantly higher for respondents who preferred home care whatever the scenario ($p < 0.001$). On the contrary, PS was the option with the weakest strength of preferences (Table 18). As shown in Figure 8, PS was chosen as the second preferred option by more than half of the respondents whatever the scenario.

Concerning the complete ranking of options according to scenarios (Table 19), two rankings were observed more frequently: Hospital as most preferred option, then proximity structure and home care as least preferred option or home care, proximity structure and hospital as least preferred option.

Table 18 Proportion of respondents who preferred hospital, home, proximity structure according to scenario

	Scenario 1	Scenario 2	Scenario 3
Hospital			
First choice n (%)	281 (35.1%)	296 (37.0%)	393 (49.1%)
Strength of preference mean (sd)	8.1 (1.6)	8.0 (1.6)	8.0 (1.6)
Home care			
First choice n (%)	369 (46.1%)	305 (38.1%)	236 (29.5%)
Strength of preference mean (sd)	8.5 (1.5)	8.4 (1.6)	8.3 (1.7)
Proximity Structure			
First choice n (%)	150 (18.7 %)	199 (24.9%)	171 (21.4%)
Strength of preference mean (sd)*	7.7 (1.6)	7.6 (1.4)	7.6 (1.3)

* Measured with VAS ranged from 0 (weak preferences) to 10 (strong preferences)

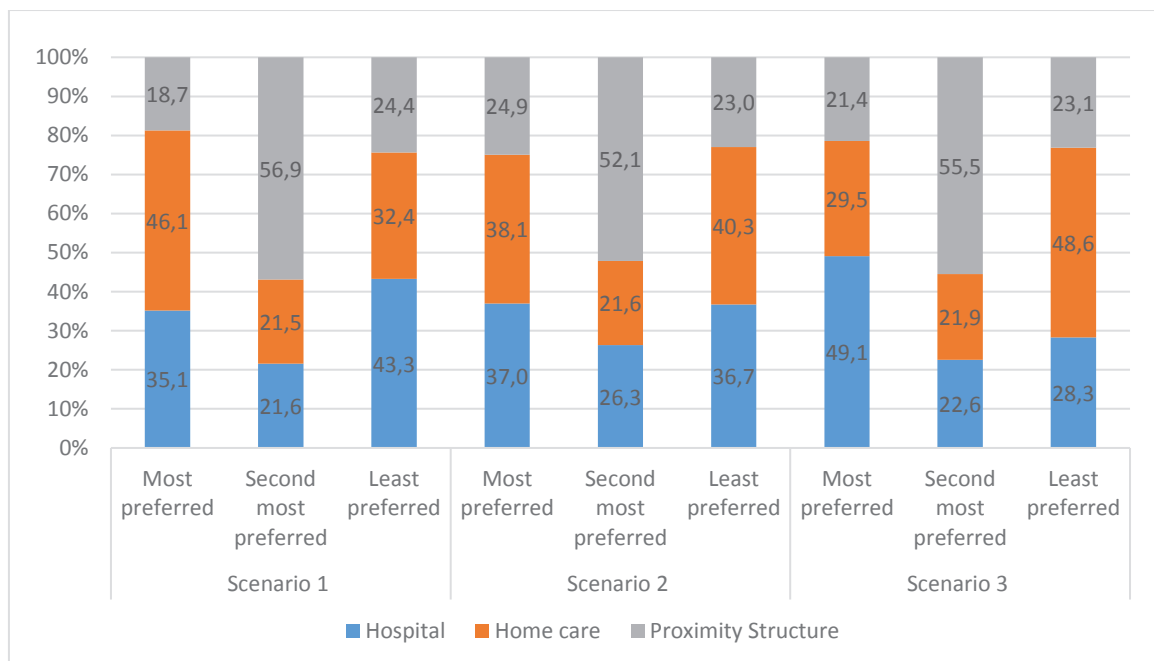


Figure 8 : Ranking of options (percentage of sample with different rankings) according to scenarios

Table 19 Proportion of respondents for each complete ranking of alternatives according to scenario

	Ranking of options			Scenario 1 %	Scenario 2 %	Scenario 3 %
	Choice 1	Choice 2	Choice 3			
1	Hospital	Home care	PS	11.00	10.25	12.75
2	Hospital	PS	Home care	24.12	26.75	36.38
3	Home care	Hospital	PS	13.38	12.75	10.38
4	Home care	PS	Hospital	32.75	25.38	19.12
5	PS	Home care	Hospital	10.50	11.38	9.12
6	PS	Hospital	Home care	8.25	13.50	12.25
Total				100%	100%	100%

Interpretation: for scenario 1, 11% of respondents preferred hospital, then home and PS. Moreover, 32.75 % declared to prefer home for their first choice, then PS and hospital as their third choice.

e) *Preferences multivariate analysis*

Each model has its pros and cons. The logit models do not hold the IIA assumption. Hypotheses concerning the errors terms in Probit model are strong, and nested models need to reduce the number of alternatives. We present ASCL, ROL and NL models and discuss the stability of results across models. Results are presented all other things equal.

Influence of alternative specific variables:

- As expected, whatever the scenario and the model used (Table 20 Table 21 Table 22 Table 23), safety was always significant ($p < 0.001$): Ranking an option as the second safest, or the least safe as compared to the safest, decreases the odds to choose this option as the first choice (ASCL/NL) or to rank it better than another option (ROL).
- Experience of care was not significant in the ROL model and ASCL model whatever the scenario considered. However, in the NL models to have an experience of a place of care increase the probability to choose this option ($p_{S1NL} < 0.001$, $p_{S2NL} < 0.01$, $p_{S3NL} < 0.05$)
- We did not find strong evidence concerning the influence of the order of presentation of the options in the decision aids. Indeed, this variable is significant only for $S1_{NL}$ & $S1_{ASCL}$ where the option presented in second position has a less important probability to be chose compared to the option presented at first position, ($p_{S1ASCL} < 0.05$ & $p_{S1NL} < 0.05$), and for the $S2_{ROL}$ where an option presented in last position has a less important probability to be ranked before another option ($p_{S2ROL} < 0.05$).

Scenario 1: Variables which explain preference between home and hospital

Results obtained from the multivariate analysis of scenario 1 are shown in Table 20.

The most significant variables explaining a preference for hospital rather than home care according to $S1_{ASCL}$ & $S1_{ROL}$ ($p < 0.05$ whatever the models) are the wish to separate home and place of care, to think that home is not adapted for care, to have a bad experience of home care and to be afraid to be alone at home.

On the contrary, respondents who want to avoid waiting time, to preserve their habits and lifestyle or who have a university degree as compared to respondents who have a primary degree have an increase odds to prefer home rather than hospital.

Some variables were significant but only in $S1_{ROL}$: to be a female increases the odds to ranking hospital before home and on the contrary, to think that daily tasks could be difficult increase the probability to rank home before hospital.

Scenario 1: Variables which explain preference between PS and hospital

The determinants of preference for PS as compared to hospital were less clear. Only two variables were significant across models ($p < 0.05$) and specific to PS: respondents who did not know if there was a PS close to their home as compared to respondents who declared that there was no PS, had an increase odd to prefer PS, this result could be explain by the fact that respondents who thought that PS do not exist next to their home anticipated the impossibility to beneficiate of this option. Moreover, respondents who wanted to avoid waiting times have a higher odd to preferred PS rather than hospital.

Scenario 1: Variables which explain preference between alternative structures (home & PS) and hospital: Nested logit model

As shown in Table 23, the nested logit model compared home and PS versus hospital. The IIA associated to this model confirmed that it could be better to use a nested logit model rather than a logit model to explain the preference ($p = 0.1052$). The estimation of the $S1_{NL}$ are closed to the estimation of the $S1_{ASCL}$ for the option home compared to hospital except for education level and to be afraid to be alone at home that were not significant in the $S1_{NL}$. To think that a PS does not exist close to home was significant in $S1_{NL}$ and increases the odds to prefer an alternative structure rather than hospital.

Scenario 2: Variables which explain preference between home and hospital

For scenario 2 (Table 21), several variables were strongly significant ($p < 0.05$) in both $S2_{ASCL}$ and $S2_{ROL}$: there was a positive correlation between preference for home care and 1) the wish to avoid meeting other patients 2) thinking that family could take care of the patient and 3) to had a bad experience of hospital. On the contrary, there was a negative correlation between 1) the wish to separate home and place of care 2) to have a bad experience of home care and 3) to think that home is not adapted to care and 4) to wish to avoid being a burden for his family.

Moreover, several variables were significant ($p < 0.05$) only in the $S2_{ROL}$: wishing to avoid trips and waiting times, to think that daily task could be difficult increase the probability to rank home care before hospital.

Scenario 2: Variables which explain preference between PS and hospital

Like scenario 1, PS's preferences' determinants as compared to hospital and home care are less clear except the wish to avoid waiting times and to have a bad experience of hospital that increase the probability to prefer PS.

Scenario 2: Variables which explain preference between alternative structures (home & PS) and hospital: Nested logit model

Based on table 23, we see that variables explaining preference for home care rather than for hospital are the same than those explaining preferences for home care or PS versus hospital in both $S2_{ROL}$ & $S2_{ASCL}$, except for sex which is significant only in $S2_{NL}$ ($p < 0.045$), being a woman increasing the odds to prefer hospital. Moreover, two variables were not significant in the $S2_{NL}$, albeit they were in the $S2_{ROL}$ & $S2_{ASCL}$ 1/the wish to avoid being a burden for relatives and 2/ to think that family could take care of the patient.

Scenario 3: Variables which explain preference between home and hospital

Based on Table 22, as compared to other scenarios, lots of variables were significant, but only in one of the two models $S3_{ROL}$ or $S3_{ASCL}$ and with a significance threshold of 5%. Several variables were significant in both $S3_{ROL}$ and $S3_{ASCL}$, mainly the same than in $S2_{ROL}$ & $S2_{ASCL}$. Additional variables were significant in both models for S3: mental quality of life and feeling sad every day increase the odds to choose hospital rather than home.

Scenario 3: Variables which explain preference between PS and hospital

As in other scenarios, PS preferences' determinants are not clear. No variable was significant in both $S3_{ROL}$ and $S3_{ASCL}$.

Scenario 3: Variables which explain preference between alternative structures (home & PS) and hospital: Nested logit model

Only three variables were significant in the $S3_{NL}$: wishing to separate home and place of care, thinking that home is not adapted to care and thinking that hospital is frightening.

Table 20 Multivariate analysis of general population's preferences for scenario 1

Scenario 1	ASCL (S1 _{ASCL})		ROL (S1 _{ROL})	
	Coef	Std. err.	Coef	Std. err.
Alternative specific variables				
Experience of care (Yes) ref No	-0.101	0.149	-0.214	0.113
Ranking of safety (second most safest)	-0.827***	0.124	-0.636***	0.094
Ranking of safety (the least safe)	-1.046***	0.135	-1.336***	0.109
Presentation of option rank 2	-0.206*	0.101	-0.130	0.075
Presentation of options rank 3	-0.170	0.100	-0.117	0.075
Home care (ref hosp)				
Age	0.007	0.007	0.009	0.006
Female	-0.214	0.199	-0.383*	0.170
Secondary (ref primary)	0.847	0.459	0.594	0.375
University (ref primary)	1.093*	0.455	0.809*	0.370
Employed (Yes)	0.324	0.206	0.388*	0.175
Proximity structure close to home (Yes) ref No	0.292	0.265	0.413	0.231
Proximity structure close to home (Don't know)	0.755**	0.233	1.046***	0.201
Avoid waiting times (agree)	0.783*	0.364	1.167***	0.335
Preserve his lifestyle (agree)	0.667*	0.294	0.557*	0.252
Separate home and place of care (agree)	-0.994***	0.206	-1.048***	0.174
Avoid meeting other patients (agree)	0.578**	0.190	0.649***	0.162
To be afraid to be alone at home (agree)	-0.524**	0.202	-0.424*	0.173
Outside care allow meeting other people (agree)	-0.419	0.239	-0.537**	0.202
Daily tasks could be difficult (agree)	0.404	0.251	0.570**	0.213
I had a bad experience in home care (agree)	-1.235***	0.332	-1.359***	0.274
My home is not adapted to care (agree)	-0.581**	0.202	-0.622***	0.172
Constant	-1.294	0.752	-1.443*	0.643
Proximity structure (ref hospital)				
Age	-0.005	0.008	0.005	0.005
Female	-0.109	0.231	-0.265	0.152
Secondary (ref primary)	0.269	0.517	0.679	0.368
University (ref primary)	0.580	0.509	0.852*	0.363
Employed (Yes)	-0.012	0.236	0.174	0.158
Proximity structure close to home (Yes) ref No	0.301	0.320	0.113	0.207
Proximity structure close to home (Don't know)	0.751**	0.277	0.515**	0.179
Avoid waiting times (agree)	1.431*	0.561	0.711*	0.290
Preserve its lifestyle (agree)	0.413	0.324	0.112	0.225
Separate home and place of care (agree)	-0.126	0.252	-0.290	0.160
Avoid to be a burden for my relatives (agree)	0.047	0.222	0.203	0.147
To be afraid to be alone at home (agree)	0.139	0.240	-0.026	0.159
Outside cares allow to meet other people (agree)	-0.379	0.292	-0.339	0.182
Daily tasks could be difficult (agree)	0.022	0.289	0.308	0.192
I had a bad experience in home care (agree)	-0.722*	0.352	-0.702**	0.249
My home is not adapted to care (agree)	-0.580*	0.239	-0.447**	0.156
Constant	-1.752	0.939	-1.161	0.594
AIC	1438.86		2432.336	
BIC	1664.41		2657.882	
Log Likelihood	-680.43		-1177.168	
chi2	221.8***		512.5***	

* p<0.05. ** p<0.01. *** p<0.001

Table 21 Multivariate analysis of general population's preferences for scenario 2

Scenario 2	ASCL (S _{2ASCL})		ROL (S _{2ROL})	
	Coef	Std. err.	Coef	Std. err.
Alternative specific variables				
Experience of care (Yes) ref No	-0.006	0.147	-0.085	0.11
Ranking of safety (second most safest)	-0.739***	0.117	-0.500***	0.09
Ranking of safety (the least safe)	-1.127***	0.130	-1.191***	0.102
Presentation of options rank 2	-0.162	0.098	-0.146	0.074
Presentation of options rank 3	-0.135	0.098	-0.181*	0.074
home care (ref hospital)				
Age	-0.005	0.007	-0.006	0.006
Female	-0.346	0.199	-0.240	0.162
Avoid the trips	0.516	0.283	0.629**	0.233
Avoid waiting times (agree)	0.744	0.395	0.801*	0.341
Separate home and place of care (agree)	-0.949***	0.205	-1.111***	0.166
Avoid to be a burden for my relatives (agree)	-0.497*	0.248	-0.611**	0.205
Avoid meeting other patients (agree)	0.754***	0.198	0.697***	0.16
Daily task could be difficult (agree)	0.490	0.260	0.725***	0.214
My family could take care of me (agree)	0.640**	0.206	0.694***	0.167
I had a bad experience in home care (agree)	-1.236***	0.347	-1.355***	0.28
I had a bad experience of hospital care (agree)	0.711**	0.267	0.801***	0.21
My home is not adapted to care (agree)	-0.949***	0.209	-0.980***	0.169
Constant	0.106	0.581	-0.157	0.494
Proximity structure (ref hospital)				
Age	-0.001	0.007	-0.001	0.005
Female	-0.329	0.201	-0.231	0.145
Avoid the trips	0.477	0.293	0.469*	0.211
Avoid waiting times (agree)	1.318*	0.515	0.688*	0.301
Separate home and place of care (agree)	-0.213	0.217	-0.390**	0.153
Avoid to be a burden for my relatives (agree)	0.190	0.287	-0.068	0.186
Avoid meeting other patients (agree)	0.361	0.199	0.324*	0.144
Daily tasks could be difficult (agree)	0.120	0.269	0.253	0.191
My family could take care of me (agree)	0.051	0.203	0.168	0.15
I had a bad experience in home care (agree)	-1.151**	0.362	-1.128***	0.259
I had a bad experience of hospital care (agree)	0.635*	0.275	0.538**	0.195
My home is not adapted for cares (agree)	-0.353	0.212	-0.428**	0.155
Constant	-1.432*	0.689	-0.476	0.444
AIC	1492		2437	
BIC	1672		2616	
Log Likelihood	-715		-1187	
chi2	211.1***		492.0***	

* p<0.05. ** p<0.01. *** p<0.001

Table 22 Multivariate analysis of general population's preferences for scenario 3

Scenario 3	ASCL (S3 _{ROL})		ROL (S3 _{ASCL})	
Alternative specific variables	Coef	Std. err.	Coef	Std. err.
Experience of care (Yes) ref No	0.153	0.151	0.067	0.113
Ranking of safety (second most safest)	-0.716***	0.113	-0.501***	0.087
Ranking of safety (the least safe)	-1.061***	0.126	-1.137***	0.096
Presentation of options rank 2	-0.170	0.102	-0.120	0.074
Presentation of options rank 3	-0.032	0.101	-0.088	0.075
Home care (ref hospital)				
Age	0.003	0.008	-0.011	0.006
Female	0.120	0.211	0.026	0.171
Socio-professional category low (ref : high)	0.377	0.249	0.440*	0.207
Socio-professional category Inactive (ref : high)	-0.379	0.259	-0.047	0.208
Child at home (>18 years old) yes	0.054	0.224	-0.077	0.182
Proximity structure close to home (Yes) ref No	-0.084	0.277	0.033	0.231
Proximity structure close to home (Don't know)	-0.120	0.242	0.016	0.201
Avoid waiting times (agree)	0.995*	0.480	0.740*	0.352
Separate home and place of care (agree)	-1.085***	0.210	-0.962***	0.170
Avoid to be a burden for my relatives (agree)	-0.508*	0.241	-0.680***	0.203
Avoid meeting other patients (agree)	0.261	0.208	0.331	0.170
Home caregivers are more available (agree)	0.458*	0.210	0.297	0.168
Daily tasks could be difficult (agree)	0.220	0.261	0.486*	0.215
Hospital is frightening	0.438*	0.222	0.329	0.180
My family could take care of me (agree)	0.442*	0.217	0.398*	0.171
I had a bad experience in home care (agree)	-0.615	0.355	-0.654*	0.282
I had a bad experience of hospital care (agree)	0.282	0.260	0.399	0.208
My home is not adapted to cares (agree)	-0.565**	0.216	-0.656***	0.175
To be sad these two last weeks (several days) ref never	-0.267	0.226	-0.222	0.185
To be sad these two last weeks (every days) ref never	-0.713*	0.353	-0.629*	0.276
Constant	-0.765	0.680	-0.061	0.521
Proximity structure (ref hospital)				
Age	-0.005	0.008	-0.003	0.006
Female	-0.110	0.215	-0.048	0.153
Socio-professional category low (ref : high)	0.002	0.266	-0.004	0.185
Socio-professional category Inactive (ref : high)	0.263	0.257	-0.023	0.186
Child at home (>18 years old) yes	0.541*	0.224	0.159	0.163
Proximity structure close to home (Yes) ref No	0.423	0.303	0.219	0.207
Proximity structure close to home (Don't know)	0.588*	0.264	0.215	0.179
Avoid waiting times (agree)	0.530	0.443	0.566	0.320
separate home and place of care (agree)	-0.295	0.215	-0.403**	0.155
Avoid to be a burden for my relatives (agree)	0.147	0.281	-0.211	0.183
Avoid meeting other patients (agree)	-0.025	0.211	-0.072	0.152
home caregivers are more available (agree)	-0.085	0.205	0.112	0.150
Daily task could be difficult (agree)	-0.206	0.263	0.160	0.189
Hospital is frightening	0.508*	0.225	0.344	0.163
My family could take care of me (agree)	-0.184	0.206	0.106	0.153
I had a bad experience in home care (agree)	-0.452	0.356	-0.616*	0.260
I had a bad experience of hospital care (agree)	0.366	0.262	0.358	0.191
My home is not adapted for cares (agree)	-0.354	0.215	-0.410**	0.156
To be sad these two last weeks (several days) ref never	-0.131	0.231	-0.164	0.165
To be sad these two last weeks (every days)ref never	0.014	0.326	-0.066	0.247
Constant	-0.865	0.668	-0.240	0.484
AIC	1457.77		2478.97	
BIC	1729.58		2750.78	
Log Likelihood	-681.88		-1192.48	
chi2	216.7***		481.9***	

* p<0.05. ** p<0.01. *** p<0.001

Chapter 3: Contingent valuation survey

Table 23 General population's preferences: NESTED

Alternative specific variables	S1 _{NL}			S2 _{NL}			S3 _{NL}		
	Coef.	Std. err.	p-value	Coef.	Std. err.	p-value	Coef.	Std. err.	p-value
Experience of care (Yes) ref No	0.424***	0.107	0.000	0.293**	0.109	0.007	0.289*	0.115	0.012
Ranking of safety (second most safest)	-0.842***	0.166	0.000	-0.748***	0.139	0.000	-0.717***	0.117	0.000
Ranking of safety (the least safe)	-0.706***	0.129	0.000	-0.936***	0.152	0.000	-0.914***	0.134	0.000
Presentation of options rank 2	-0.173*	0.080	0.031	-0.120	0.084	0.152	-0.114	0.088	0.194
Presentation of options rank 3	-0.101	0.076	0.183	-0.052	0.083	0.530	0.011	0.084	0.896
(home care+ PS) ref hospital									
Age	-0.000	0.005	0.972	-0.003	0.005	0.562	-0.004	0.005	0.423
Female	-0.210	0.177	0.236	-0.334*	0.166	0.045	0.007	0.172	0.969
Proximity structure close to home (Yes) ref No	0.240	0.237	0.310				0.084	0.231	0.717
Proximity structure close to home (Don't know)	0.690***	0.206	0.001				0.165	0.196	0.400
Secondary (ref primary)	0.281	0.338	0.405						
University (ref primary)	0.543	0.336	0.106						
Employed (Yes)	0.145	0.179	0.418						
Avoid waiting times (agree)	0.787*	0.306	0.010	0.886**	0.303	0.003	0.604	0.314	0.054
Preserve its lifestyle (agree)	0.508*	0.242	0.036						
Separate home and place of care (agree)	-0.757***	0.190	0.000	-0.654***	0.178	0.000	-0.743***	0.171	0.000
Avoid meeting other patients (agree)	0.341*	0.172	0.048	0.545**	0.168	0.001	0.099	0.170	0.563
to be afraid to be alone in home (agree)	-0.324	0.184	0.080						
Outside cares allow to meet other people (agree)	-0.509*	0.219	0.020						
Daily task could be difficult (agree)	0.234	0.227	0.301	0.304	0.224	0.174	-0.001	0.215	0.995
I had a bad experience in home care (agree)	-1.015***	0.272	0.000	-1.154***	0.293	0.000	-0.546	0.286	0.056
My home is not adapted for cares (agree)	-0.598**	0.184	0.001	-0.663***	0.180	0.000	-0.468**	0.175	0.008
Socio-professional category low (ref : high)							0.181	0.205	0.376
Socio-professional category Inactive (ref : high)							-0.065	0.209	0.757
Avoid the trips				0.450	0.235	0.055			
Avoid being a burden for my relatives (agree)				-0.243	0.223	0.276	-0.246	0.210	0.240
My family could take care of me (agree)				0.319	0.167	0.057	0.083	0.167	0.618
I had a bad experience of hospital care (agree)				0.636**	0.237	0.007	0.296	0.219	0.176
I want to stay close to my family (agree)									
The trips are painful to me (agree)									
Hospital is frightening							0.481**	0.181	0.008
Child at home (>18 years old) yes							0.245	0.178	0.170
Home caregivers are more available (agree)							0.172	0.168	0.305
To be sad these two last weeks (several days) ref never							-0.200	0.185	0.279
To be sad these two last weeks (every days) ref never							-0.320	0.272	0.240
ext_hosp_tau Constant	0.697***	0.156	0.000	0.764***	0.166	0.000	0.739***	0.153	0.000
hosp_tau Constant	1.000	.		1.000	.		1.000	.	
AIC		1534.066			1546.119			1492.435	
BIC		1661.297			1650.217			1642.799	
Log Likelihood		-745.033			-755.059			-720.218	
LR test for IIA (tau = 1): Prob > chi2		0.1052			0.2153			0.1491	

* p<0.05. ** p<0.01. *** p<0.001

5.2.3 WTP estimations

5.2.3.1 Econometric analysis:

As shown in the diagram of the study (Figure 9), WTP question has been asked only to respondents who declared to prefer home care or proximity structures. For each scenario: the WTP question was *“How much is the maximum your household would be willing to pay per month to benefit from home care/ or proximity structure if one day you need it? Please bear in mind that your payment would reduce the amount of money you have to pay other goods/services.”* (see Appendice 5). Moreover, if the respondent answered zero to the WTP question, he was then asked to explain why he was unwilling to pay (see Appendice 5). According to the literature (Freeman, 1992), a zero WTP is reclassified as a true zero WTP or as a protest response. We considered here a zero value as a protest response if the respondent checked *“I did not understand the question”*, *“There was not enough information for me to choose”*, *“I refuse to pay for care”*, *“Others.”* After controlling with a binary logit regression that the protest respondents were not different from respondents who provided a positive or a true zero WTP, we excluded the protesters from the analysis.

WTP analysis:

The interval data model has been used to study the determinants of the WTP and to test internal validity of the WTP. Variables used in the WTP analysis are described in Table 24 Hypotheses about WTP determinants. This model is a reparametrization of the random utility model developed by (Hanemann, 1984). We chose this model because respondents reported their WTP on a payment card. We assumed that the true WTP value was between the amount effectively chosen and the next higher amount on the PC, ie. thus, their true value was in the range. Consequently, observations are analyzed like interval data, but this model allows different types of censoring. Indeed, WTP values could be right censored if the true WTP is considered above the amount indicated in the payment card and the data could be considered as left censored, that is our case for zero values as suggested by Strazzer et al., (2003). Moreover, the values could be considered as not censured. This is our case when respondents indicated another amount not proposed in the PC. This model is assumed to follow a log normal distribution. We used the log of the WTP to produce a near normal distribution because the WTP values were non-normally distributed. Moreover, the

coefficients estimated can be interpreted like in OLS model: if we change x by 1 (unit), we expect our y variable to change approximatively by $100 \cdot \beta_1$ percent. The exact value is: $\% \Delta y = 100 \cdot (\exp(\beta_1) - 1)$.

Furthermore, there are several possibilities to estimate mean and median WTP : the first is to consider the selected bid amount on the PC as an exact expression of the respondent's maximum WTP, as suggested by (Mitchell and Carson, 1981) (Table 26). Thus, we can calculate a mean and median. The second method consists in removing all the explaining variables of the interval regression model to obtain an estimation of the mean WTP in the sample ($\text{mean} = \exp(\beta_0 + \sigma^2/2)$) or a median $= \exp(\beta_0)$ (Lindhjem and Navrud, 2011) (Table 26). Moreover, the estimation with the interval regression model is presented with the non-parametric bootstrap estimation of the 95% confidence interval with 1000 replications (Table 26). Finally, after the WTP questions, respondents were asked to indicate how certain they were on a scale from 1 to 10 where 1 is very uncertain and 10 is very certain. We also estimated the WTP in the sub-group of respondents who were sure of their WTP (score ≥ 7 on the follow-up scale from 0 very uncertain to 10 very certain) to compare the robustness of our estimation. The models have been compared with AIC, BIC log likelihood and the Cox-Snell pseudo-R², in which the ratio of the likelihoods reflect the improvement of the full model over the intercept-only model.

Table 24 Hypotheses about WTP determinants

Explicative variables	Hypothesis
Socio-economic data:	
Gender	Generally, female is willing to pay less than male
Age	Positive correlation between age and WTP
Education	Positive correlation between the level of education and WTP
Number of person in the household	Positive correlation between the number of person living at home and WTP because more people could benefit from the option
Socio-professional category	High socio-professional category is associate with high WTP
WTP reflects ability to pay: household income (four dummy variables) possession of private health insurance	Income would be positively correlated with WTP as the possession of private health insurance
Attitudes towards cancer: *whether they perceived their chances of contracting cancer it to be above average (dummy=1) *Quality of life	Intuition would lead us to expect higher WTP values from those perceiving themselves to be particularly at-risk ceteris paribus A poor QoL would be associated with lower WTP
Experience: whether or not the subject or their relative had previous experience of cancer or management of care at home/proximity structure/hospital	Experience of cancer would be positively correlated with WTP
Preferences: as the strength of preferences measured with VAS	Preference would be positively correlated with WTP
Subjects expressed difficulties in estimating WTP: degree of certainty of WTP	Certainty respondents would have a higher WTP

5.2.3.2 Results:

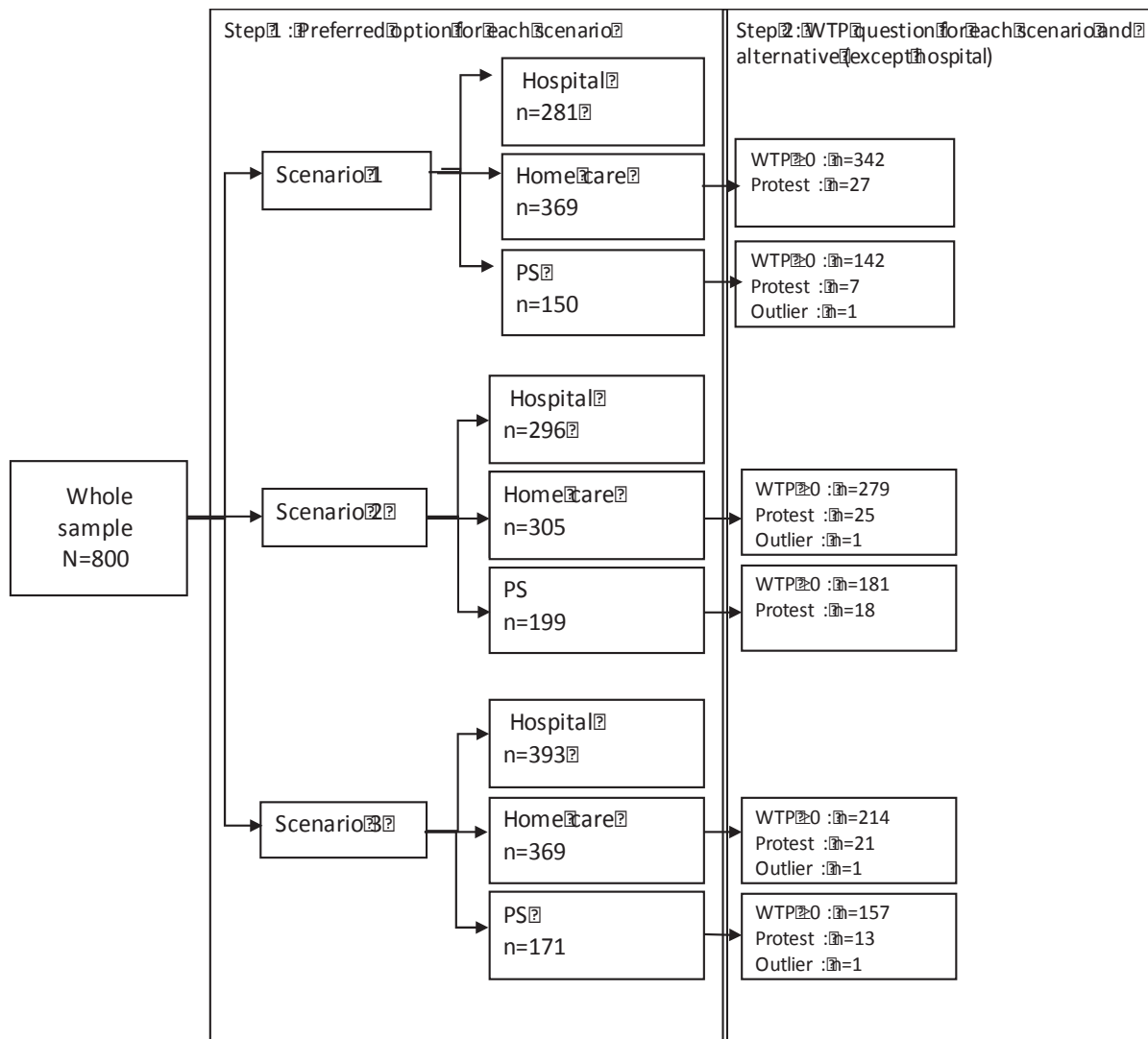


Figure 9 : Diagram of the general population study: whole sample n=800

The proportions of respondents who provided a zero valuation in response to the WTP questions ranged from 13.1% for scenario 1 and 2 to 15% for scenario three (Table 25). After the reclassification process, the rate of protest responses varied from 6.5% to 8.5% for scenario 1 and 2 respectively. The large majority of protesters declared to refuse to pay for care. A binary logistic model has been used to compare protest respondents and the others. No significant differences were found in terms of gender, age, socio-professional category, income, personal situation (living with a partner, having children at home) or comprehension of information and cancer risk (Appendice 4).

Table 25 Description of responses to the WTP questions

Reason of zero WTP	Scenario 1 n (%)	Scenario 2 n (%)	Scenario 3 n (%)
TRUE ZERO WTP	34/68 (50%)	23/66 (34.8%)	27/61 (44.3%)
I do not have the money to pay for home care. even if I would like to benefit from it	17/68 (25.0%)	9/66 (13.7%)	14/61 (23.0%)
In hospital care are free. I prefer to be cared in hospital	17/68 (25.0%)	14/66 (21.2%)	13/61 (21.3%)
PROTEST ZERO	34/68 (50%)	43/66 (65.2%)	34/61 (55.7%)
I did not understand the question	0/68 (0.0%)	0/66 (0.0%)	0/61 (0.0%)
There was not enough information for me to choose	3/68 (4.4%)	7/66 (10.6%)	1/61 (1.7%)
I refuse to pay for care	22 /68 (32.0%)	28/66 (42.4%)	23/61 (37.7%)
Others	9 /68 (13.2%)	8/66 (12.1%)	10/61 (16.4 %)
Number of Zero WTP n/N (%)	68/519 (13.1%)	66/ 504 (13.1 %)	61/ 407 (15.0 %)
Number of PROTEST responses n/N (%)	34/519 (6.5%)	43/504 (8.5%)	34/407 (8.3%)

Table 26 WTP Estimations on the whole sample and a sub-sample of certain respondents according to scenario and preferred option

WTP /month/household	home care			Proximity structure		
	Scenario 1 (S1 _{home})	Scenario 2 (S2 _{home})	Scenario 3 (S3 _{home})	Scenario 1 (S1 _{ps})	Scenario 2 (S2 _{ps})	Scenario 3 (S3 _{ps})
Full sample	n=342	n=279	n=214	n=142	n=181	n=157
mean (sd) ¹	12.1 (13.3)	13.3 (12.7)	14.7 (16.0)	10.6 (11.6)	14.7 (26.4)	13.9 (18.1)
median [IiQ]	10.0 [3.0-20.0]	10.0 [5.0-20.0]	10.0 [5.0-25.0]	8.0 [3.0-15.0]	10.0 [5.0-20.0]	10.0 [5.0-20.0]
intreg mean 95%IC ²	15.7 (12.6-20.1)	17.0 (13.5-22.0)	19.1 (14.2-26.7)	13.92 (9.9-20.4)	16.05 (12.2-21.9)	17.6 (12.2-26.7)
intreg median 95% IC	8.1 (7.1-9.2)	9.8 (8.6-11.1)	9.8 (8.4-11.5)	7.3 (6.05-8.9)	9.2 (7.8-10.7)	8.7 (7.1-10.6)
Certain sample ³	n=243	n=202	n=163	n=95	n=125	n=115
mean (sd) ¹	13.2 (14.9)	14.2 (13.8)	15.8 (17.4)	11.5 (13.1)	13.1 (12.5)	13.2 (13.9)
median [IiQ]	10.0 [3.0-25.0]	10 [5.0-25.0]	15 [5.0-25.0]	10.0 [3.0-20.0]	10.0 [5.0-20.0]	10.0 [5.0-20.0]
intreg mean 95%IC ²	17.3 (13.04-48.1)	18.19 (13.8-25.1)	20.3 (14.6-29.7)	14.8 (9.9-23.8)	17.1 (11.9-26.2)	17.7 (11.4-29.5)
intreg median 95% IC	8.3 (7.10-9.7)	10.3 (8.9-12.0)	10.6 (8.9-12.6)	7.8 (6.2-9.7)	9.0 (7.3-11.1)	8.5 (6.7-10.8)
Uncertain sample ³	n=99	n=77	n=51	n=47	n=56	n=42
mean (sd) ¹	9.55 (7.5)	10.8 (8.9)	11.1 (9.4)	8.8 (7.4)	12.8 (20.2)	15.64 (26.5)
median [IiQ]	10 [3.0-10.0]	10 [5.0-15.0]	10 [3.0-20.0]	8 [3.0-10.0]	9 [5.0-15.0]	10 [5.0-15.0]
intreg mean 95%IC ²	12.5 (8.9-18.4)	14.04 (9.4-22.4)	15.1 (8.3-32.8)	12.1 (6.7-26.2)	14.0 (9.7-22.0)	17.37 (9.4-38.9)
intreg median 95% IC	7.6 (6.2-9.4)	8.3 (6.6-10.6)	7.8 (5.6-10.9)	6.5 (4.6-9.2)	9.4 (7.5-11.8)	9.25 (6.5-13.1)

¹ This estimation considered that the respondent chosen amount on the PC is his true WTP, the WTP is estimated with a classical mean calculation

² The mean is estimated with a bootstrap replication of the interval regression which considers that the amount is an interval.

³ A respondent is considered certain if he has a score ≥ 7 on the VAS from 0 very uncertain to 10 very certain

Table 26 summarizes outcomes for the WTP questions according to scenario in the whole sample and in a sub-sample of respondents who declared to be certain and uncertain of their WTP. These results demonstrate that there are differences in the valuation of the WTP across scenarios. On the whole sample, for home care, the mean WTP is 12.1€/per month/per household for scenario 1, 13.3€ for scenario 2 and 14.7€ for scenario 3, these differences have been tested with a mixt model and they are significant ($p < 0.001$). The mean WTP estimated with interval regressions has the same trend, with 15.7€, 17.0€ and 19.1€ for scenario 1, 2 and 3 respectively. For proximity structure WTP the mean WTP is 10.6€ per month/ household for scenario 1, 14.7€ for the scenario 2 and 13.9€ for scenario 3, these differences are significant ($p < 0.001$).

Concerning the estimation of the WTP (Table 26), when the sample is restricted to respondents who declared to be certain of their choice, the mean WTP is higher for home care whatever the scenario and for the two methods of estimation, whereas, for proximity structure the difference between the whole sample and the “certain” respondents is smallest and depends on scenario and of the estimation method. Indeed, the interval regression model in the sub-group of “certain” respondents provides higher WTP than in the whole sample that is not the case for estimations with the descriptive statistics method.

Finally, if we compare mean WTP between certain and uncertain respondents, the mean WTP is higher for certain respondents, for all scenarios except for $S3_{PS}$ and whatever the method used. However, this difference is statistically significant only for $S2_{home}$ ($p = 0.035$) & $S3_{home}$ ($p = 0.047$), tested with non-parametric test.

A series of multivariate analysis were performed first in order to determine respondent’s characteristics associated with the WTP value and secondly to check the validity of responses. As shown in Table 27 Interval regression analysis of WTP according to scenario and preferred option, WTP were positively correlated with the household income except for the sub-group of respondents who preferred PS in scenario 3.

Whatever the scenarios, for respondents who preferred home care, higher strength of preferences have a positive impact on valuation. This result is more mitigated for PS. Indeed, this relation is not significant for $S1_{PS}$ ($p = 0.650$). Moreover, women tend to value WTP lower than men for $S1_{home}$ ($p = 0.036$), $S2_{PS}$ ($p = 0.089$), and $S3_{PS}$ ($p = 0.010$). Furthermore, age was

negatively correlated with WTP value for $S1_{home}$ ($p=0.091$). On the contrary, low socio-professional category raised the WTP for $S1_{home}$ ($p=0.014$), and $S3_{home}$ ($p=0.055$).

Quality of life was positively correlated with WTP for $S3_{home}$ ($p=0.055$) and $S3_{ps}$ ($p=0.023$), but was not significant for other scenarios. Finally, education level, number of people in the household and experience of home care did not impact the mean WTP whatever the scenarios.

Analysis conducted among the “certain” respondents sample (Table 28) provided slightly the same results in terms of significant variables, but with different coefficients. Moreover, adjustments seemed to be slightly better than those obtained in the sample (R2 criteria).

Table 27 Interval regression analysis of WTP according to scenario and preferred option

	scen1_intrreg_home			scen1_intrreg_PS			scen2_intrreg_home			scen2_intrreg_PS			scen3_intrreg_home			scen3_intrreg_PS		
	Coef.	sd	pvalue	Coef.	Sd	pvalue	Coef.	Sd	pvalue	Coef.	Sd	pvalue	Coef.	Sd	pvalue	Coef.	Sd	pvalue
Gender:female (ref:male)	-0.274*	0.131	0.036	-0.317	0.198	0.109	-0.059	0.130	0.648	-0.270	0.159	0.089	-0.145	0.160	0.366	-0.491*	0.192	0.010
Age (years)	-0.008	0.005	0.091	-0.003	0.007	0.621	-0.004	0.005	0.456	0.002	0.005	0.719	0.000	0.006	0.962	-0.009	0.006	0.181
Socio-professional category (ref: high)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Low	0.420*	0.171	0.014	0.326	0.261	0.212	0.215	0.164	0.188	-0.110	0.215	0.611	0.380	0.198	0.055	-0.233	0.263	0.376
Inactive	0.255	0.165	0.122	0.376	0.252	0.137	0.260	0.163	0.111	0.056	0.206	0.787	0.175	0.206	0.394	-0.023	0.256	0.928
Annual household income (ref <21.000€)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21.000€ to <36.000€	0.401*	0.177	0.024	0.493*	0.246	0.046	0.352*	0.173	0.042	0.183	0.211	0.386	0.482*	0.207	0.020	0.016	0.250	0.950
>36.000€	0.717***	0.195	0.000	0.752***	0.263	0.004	0.650***	0.184	0.000	0.489*	0.230	0.033	0.813***	0.222	0.000	0.241	0.290	0.406
Missing	0.774**	0.287	0.007	0.779*	0.383	0.042	0.578*	0.281	0.040	0.422	0.296	0.154	0.978**	0.340	0.004	-0.124	0.384	0.746
Perception of cancer risk (ref: High or very high)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Moderately high	0.247	0.177	0.162	0.159	0.279	0.568	0.199	0.177	0.259	0.483*	0.243	0.047	0.371	0.224	0.098	0.004	0.273	0.989
Low or very/low	0.286	0.192	0.137	0.404	0.295	0.171	0.338	0.190	0.075	0.729**	0.270	0.007	0.178	0.245	0.466	0.246	0.304	0.418
Do not know	-0.077	0.185	0.678	0.785**	0.277	0.005	-0.038	0.177	0.829	0.855***	0.251	0.001	-0.074	0.209	0.725	0.114	0.287	0.692
Strength of preference VAS from 0 to 10	0.136**	0.043	0.002	-0.030	0.066	0.650	0.140***	0.042	0.001	0.130*	0.059	0.027	0.101*	0.051	0.049	0.196*	0.076	0.010
Degree of certainty VAS from 0 to 10	-0.005	0.029	0.856	0.060	0.048	0.207	-0.005	0.031	0.871	-0.054	0.043	0.211	0.049	0.037	0.180	-0.108*	0.047	0.022
Quality of Life (VAS from 0 to 10)	0.679	0.457	0.138	1.016	0.613	0.097	0.669	0.427	0.117	0.818	0.566	0.148	-0.373	0.605	0.538	0.135*	0.060	0.023
Constant	0.085*	0.041	0.037	0.034	0.064	0.598	-0.012	0.045	0.785	-0.025	0.055	0.647	0.035	0.052	0.495	0.071	0.061	0.239
N. of cases	342			142			279			181			214			157		
AIC	1463			646			1204			796			930			708		
BIC	1517			687			1255			841			980			754		
Log Likelihood	-718			-309			-588			-384			-450			-339		
R2	0.110			0.161			0.123			0.152			0.191			0.184		
ch12	39.8***			24.9*			36.9***			29.8**			45.5**			31.9**		

* p<0.05, ** p<0.01, *** p<0.001

Table 28 Interval regression analysis of WTP according to scenario and preferred option on "certain" sub-sample

	scen1_intreg_home			scen1_intreg_PS			scen2_intreg_home			scen2_intreg_PS			Scen3_intreg_home			Scen3_intreg_PS		
	Coef.	sd	pvalue	Coef.	Sd	pvalue	Coef.	Sd	pvalue	Coef.	Sd	pvalue	Coef.	Sd	pvalue	Coef.	Sd	pvalue
Gender female (ref male)	-0.243	0.160	0.129	-0.515*	0.233	0.027	-0.088	0.153	0.567	-0.376	0.199	0.059	-0.126	0.184	0.492	-0.434*	0.220	0.048
Age (years)	-0.012	0.006	0.053	-0.008	0.008	0.316	-0.008	0.006	0.174	0.000	0.007	0.962	-0.002	0.008	0.770	-0.018*	0.008	0.024
Socio-professional category (ref : high)																		
Low	0.559**	0.213	0.009	0.486	0.307	0.113	0.188	0.194	0.332	0.026	0.280	0.927	0.191	0.238	0.422	-0.049	0.310	0.875
Inactive	0.476*	0.210	0.023	0.646*	0.320	0.044	0.366	0.188	0.052	0.236	0.272	0.387	0.197	0.240	0.413	0.050	0.323	0.878
Annual household income (ref <21.000€)																		
21.000€ to <36.000€	0.434*	0.219	0.048	0.645*	0.309	0.037	0.386	0.202	0.056	0.133	0.273	0.627	0.402	0.241	0.096	0.168	0.295	0.569
>36.000€	0.937***	0.240	0.000	0.544	0.315	0.084	0.764***	0.217	0.000	0.492	0.294	0.095	0.784**	0.262	0.003	0.282	0.356	0.429
Missing	1.229**	0.398	0.002	1.007*	0.493	0.041	0.910**	0.325	0.005	0.538	0.398	0.177	1.181**	0.403	0.003	0.051	0.504	0.920
Perception of cancer risk (ref : High or very high)																		
Moderately high	0.290	0.218	0.184	0.443	0.351	0.207	0.328	0.215	0.126	0.380	0.313	0.225	0.330	0.261	0.206	-0.174	0.342	0.612
Low or very low	0.292	0.239	0.222	0.711*	0.357	0.047	0.334	0.230	0.147	0.636	0.341	0.062	0.235	0.281	0.403	0.041	0.356	0.909
Do not know	0.012	0.228	0.959	1.056**	0.328	0.001	-0.041	0.213	0.847	0.816*	0.320	0.011	0.084	0.247	0.734	-0.236	0.347	0.496
Strength of preference VAS from 0 to 10	0.142*	0.064	0.026	-0.174	0.103	0.091	0.144**	0.053	0.006	0.156	0.080	0.051	0.135*	0.066	0.040	0.234*	0.093	0.012
Quality of Life (VAS from 0 to 10)																		
Insigma	0.463	0.689	0.502	2.644**	0.918	0.004	0.671	0.556	0.228	0.239	0.820	0.771	0.162	0.839	0.847	0.158*	0.077	0.040
Constant	0.130**	0.048	0.007	0.018	0.078	0.821	-0.020	0.053	0.703	0.044	0.067	0.513	0.060	0.059	0.304	0.036	0.920	0.968
N. of cases		243			95			202			125			163			115	
AIC		1036			437			863			554			725			515	
BIC		1082			470			906			591			793			553	
Log Likelihood		-505			-205			-418			-264			-340			-243	
R2		0.123			0.194			0.148			0.148			0.134			0.224	
chi2		31.9***			20.45*			32.3***			20.1*			23.4*			29.1**	

* p<0.05, ** p<0.01, *** p<0.001

5.3 Discussion conclusion

Our first objective in this chapter was to elicit citizens' preferences for homecare, proximity structures and hospital in the management of cancer according to three different scenarios corresponding respectively to a "light" management of cancer with only a short chemotherapy (less than one hour every months for 6 to 12 months (scenario 1), a more heavy scenario with a long chemotherapy (from 2 to 6 hours) during five consecutive days during 6 to 12 months (scenario 2), and the heaviest scenario corresponding to palliative care (scenario 3) with chemotherapy and other treatments like antibiotics, parenteral/enteral nutrition, treatment against pain in infusion and blood transfusion.

Our second aim was to assess citizens' WTP to benefit from their preferred option (home or PS) for each scenario. More especially, we tested (i) the acceptability and the validity of the CV method in this population by eliciting her option value and (ii) the introduction of a *follow-up* question in the payment card elicitation format.

Because information is a central point in CV method (Smith, 2008), we decided to integrate a decision aid tool in our CV survey. To our knowledge, this approach is original since only Matthews et al. (2002) in the dental context and Iskedjian et al. (2009) for treatment of multiple sclerosis developed such a method. Thus, our survey provides a unique insight of how a large sample of citizens perceives different places of care for a hypothetical management of their cancer.

Several interesting results emerged from our analysis:

Preferences ranking in each scenario

Concerning the ranking of the three options, hospital, home and PS:

- In scenario 1, home care is the preferred option for 46.1% of respondents, followed by hospital with 35.1% and then by PS with 18.7%.
- In scenario 2, home and hospital are the preferred option for respectively 38.1% and 37%.
- In scenario 3, hospital is the preferred option for 49.1% of respondents and home for 29.5%.

As expected, more the management of care is heavy, more the proportion of respondents who prefer hospital increases. A possible explanation could be related to the perception of safety since hospital was considered as the safest option by 71.4% of the respondents and home as least safe for 63.9%. Our result is different from another study conducted in France by Blayac et al. (2014) who analyzed patients' and population's preferences for home care and hospital without focusing on a specific disease, using a DCE method. Their scenarios were based on five attributes, the nature of the patient's management in case of problem (nature of the communication, phone or face-to-face with the medical staff who knows or not patient's medical record), the delay of management of care in case of problem, the burden for family (number of hours per day for patient's care), comfort and coordination of care, and *out-of-pocket*. The authors found that both patients and the general population preferred home care.

The strength of preferences for the preferred option was significantly higher for home care as compared to hospital whatever the scenarios.

Focus on Proximity structures

Preferences for proximity structures could be characterized by: (i) significantly lower strength of preferences as compared to other options; (ii) being the second preferred option for more than half of the respondents whatever the scenario; (iii) having the lowest proportion of rankings as the least preferred option whatever the scenario.

Proximity structures appeared as the less known option in the general population. Even if their number is increasing since the early 2010s, they do not propose to manage cancer care and citizens do not identify them as potential structures for cancer care. It is thus possible that this option more suffers than others from an hypothetical bias and framing effect (Alberini et al., 2003a; Corso et al., 2001). Respondents could have more difficulties to define this type of structure and this could explain a lesser degree of their preference. It is nonetheless interesting to see that PS appeared as an alternative to both hospital and home care. Even if PS is rarely the preferred option, it also rarely the less preferred.

Preferences' reasons

Concerning preferences' reasons, even if several multivariate analyses have been conducted, unfortunately, none were completely satisfying. Indeed, the most relevant model, the Alternative Specific Ranked Ordered Logit model which can explain the complete ranking of choices, and the Alternative Specific Conditional Logit do not hold the IIA hypothesis, a condition of applicability of these models. Nevertheless, some authors argued that it is possible to use these models even if this hypothesis is not hold (Long, 2014). Even if we can indeed reasonably consider that no option is a closed substitute to another, this point of view is not really observed in reality. To avoid this constraint, the literature suggests using the probits models, but these models have a strong hypothesis concerning the structure of the variance of the errors terms. Some authors showed that this assumption is rarely verified and leads to misspecified models (Cameron and Trivedi, 2005).

For all these reasons, we decided to also use the Nested Logit Models that imply to gather two options, i.e. proximity structures and home care.

Generally, variables which were strongly significant in a model were also significant ($p < 0.001$) in others even if the level of significance could vary across models.

Results concerning respondents' preferences' reasons showed that:

- Whatever the scenario and the models used (ASCL, ROL, NL), safety ($p < 0.001$), wishing to separate home and place of care ($p < 0.001$) and thinking that home is not adapted to care were strongly significant ($p < 0.01$) to explain the preferred option.
- Wishing to avoid meeting other patients and having a bad experience of home care were significant for all models for S1 and S2 ($P_{s1(\text{all models})} < 0.05$, $P_{s2} < 0.01$). Wishing to avoid waiting times ($P_{s1(\text{all models})} < 0.05$, $P_{s2(\text{ROL})} < 0.05$, $P_{s3(\text{ROL+ASCL})} < 0.05$) influenced the choice in the expected direction, increasing thus the odds to prefer home.
- Wishing to avoid being a burden for his relatives increased the odds to prefer hospital whereas thinking that family can take care of him decreased the odds to prefer hospital, these two variables were significant for ROL and ASCL in S2 & S3 ($P_{s2(\text{ROL+ASCL})} < 0.05$, $P_{s3(\text{ROL+ASCL})} < 0.05$).
- Except education for S1 in ROL and ASCL models, no socio-demographic characteristics were significant. Indeed, income age, sex, having children at home, to be employed, have no impact on preference contrary to a study that found a

correlation with marital status, age and quality of life (Havet et al., 2012), but this study has been conducted among cancer patients and was focused on blood transfusion.

- Preferences in scenario 1 seemed to be the most well-defined ones as compared to those in other scenarios. Indeed, the majority of variables were significant in all models contrary to the two others scenarios in particular in scenario 3.
- Experience of care ($P_{s1NL} < 0.001$, $P_{s2NL} < 0.01$, $P_{s3NL} < 0.05$) was significant in all scenarios; but only in the NL models.

Concerning the hypothetical bias, it seems to be supported in scenario 1 where respondents who did not know if a PS was available were more likely to prefer PS as compared to respondents who thought that no PS was available.

Additionally, a main issue when several options and scenarios are studied is the ordering effect. To mitigate distal order effect, we randomized both the presentation of the options and the order of modality during the ranking process for each scenario. The econometric analysis does not provide strong evidence concerning the presence of distal order effect. The rank variable was only significant for S1 and for the position 2 in the order of presentation as compared to order 1 ($p=0.031$), meaning that if the option was presented in second position, the odds to prefer this option was lower as compared to the option presented in the first position. This result is supported in other studies (Stewart et al., 2002). However, to mitigate cognitive burden, we did not randomize the order of scenarios. Scenarios were thus always presented from the lightest to the heaviest. We may think that this presentation order was in favor of hospital for heavy care.

Contingent valuation survey

Population

We collected WTP among the general population, meaning not cancer patients but individuals at potential future risk of cancer. Our aim was to elicit option value, in an *ex-ante* insurance context, rather than the use value collected among cancer patients. We thought it was more relevant since in France approximately 75 % of the health care spending is

funding by the collectivity and the *out-of-pocket* represents less than 9% of the spending. Although, a large majority of CV surveys are conducted among patients (Smith and Sach, 2010a), we thought it was not relevant in our context knowing that as underlined by O'Brien and Gafni, (1996) doing so could generate high protest responses, questions being perceived as unrealistic and unacceptable.

The WTP question had been asked only among respondents who declared to prefer home or PS. This methodological choice could be discussed for several reasons:

1/WTP question can both elicit option value and externalities or altruism value. Consequently, a respondent who prefer hospital could be willing to pay for the development of home care or PS for an altruistic reason. We chose to isolate the altruism value and to analyze the altruism WTP separately because this value could generate a warm glow effect (Andreoni, 1990).

2/We could have asked the WTA to give up the preferred option to all respondents who preferred hospital, but WTA is known to suffer from a bias due to the lack of budget constraint and to loss aversion (Kahneman and Tversky, 1984).

Elicitation format

We used a PC ranged from 0 to 25 euros with the possibility to provide another amount. PC is the most used elicitation format in health. Although, payment card can suffer from range and central value bias, we chose not to random amounts in our PC (Chanel et al., 2016; Voltaire et al., 2015). Indeed, random payment card can increase the cognitive burden (Andersen et al., 2006). Moreover, there is not strong evidence that random PC avoid this bias and we thought that randomizing the PC could decrease the credibility of the WTP questions (Voltaire et al., 2017).

Concerning protest responses, their proportion was never higher than 8.5%. A meta-analysis of 254 studies indicated that the rate of protest responses is around 18 % sometimes reaching 50% (Meyerhoff and Liebe, 2010). Moreover, we had one outlier at maximum per scenario and per choice. Such situation is in favor of the acceptability of the WTP method to estimate the option value. Moreover, protest respondents were not different in terms of sociodemographic characteristics. Although, some authors (Fonta et al., 2010) argued that

they could generate a bias, the few number of protest responses and their lack of difference in terms of socio economic profiles led us to exclude them as well as the outliers (Jorgensen et al., 1999; Pennington et al., 2017).

The mean WTP tendency increased when the scenario was heavier, although the difference was not so high, it was significant ($p < 0.001$). The estimations of the WTP by the interval regression model, were: $WTP_{S1home} = 15.7\text{€}/\text{per household}/\text{month}$, $WTP_{S2home} = 17.0\text{€}$, $WTP_{S3home} = 19.1\text{€}$, for PS $WTP_{S1PS} = 13.9\text{€}$, $WTP_{S2PS} = 16.1\text{€}$ $WTP_{S3PS} = 17.6\text{€}$.

It is important to keep in mind the possible proximal order effect in the mean WTP. Indeed, the order of the WTP question could influence the mean WTP. Even if we underlined that three WTP would be asked depending on their preferences, we cannot guaranty that responses do not suffer from an order effect (Anderson et al., 2014; Bateman et al., 2004). However, the fact that the differences between WTPs across scenarios were significant could indicate that respondents were not totally insensitive to the modification of scenario.

Concerning the determinants of WTP in the whole sample, the interval regression model indicated as expected, a correlation between income and WTP except for WTP_{S2PS} and WTP_{S3PS} . For these scenarios, the validity of the WTP is questioned. Moreover, for all the WTP, the relation between WTP and strength of preference was significant and in the expected direction displaying the validity of the WTP estimation. But for the WTP_{S1PS} scenario this result is rather disappointing, Indeed, the WTP is not impacted by the strength of preferences. Nevertheless, this result is not so surprising since PS were less known as compared to home care. Other variables such as perception of cancer risk, experience of care, number of people in the household, degree of certainty was not significant.

Follow-up question and certainty

Finally, as suggested in the literature, we tested the introduction of a *follow-up* question to measure the degree of certainty of the WTP. The literature largely suggests that certainty respondents are less sensitive to framing effect or range bias, (Shackley and Dixon, 2014; Voltaire et al., 2015). Although the NCS is generally used in the dichotomous elicitation format, we fixed the threshold to 7 on a scale ranged from 0 very unsure to 10 very sure to select our sample as suggested by Ethier et al., (2000); Poe et al., (2002). The quality of the

adjustment seems to be better for the majority of the scenarios, but restricts the analysis to only sure respondents, thus reducing the sample size. Depending on the scenario, the reduction could reach 30% of the initial sample. Moreover, the restriction of the analysis to the fully sure sample weakly increases the mean WTP. This result seemed to contradict the theory. Indeed, the mitigation of hypothetical bias should decrease the WTP (Champ et al., 2009). But, in reality it depends on how uncertain responses are recoded (Shaikh et al., 2007). Moreover, Shackley and Dixon, (2014) found a same variation of the WTP with a split sample between definitely sure and probably sure respondents. Blumenschein et al., (2008) found a similar result and explained that sure respondents were more interested in the good or service assessed.

Keys results:

- Preferences:
 - **Ranking of preferences**
 - For the lightest scenario, with only a short chemotherapy every month for 6 to 12 months, home care was the preferred option for 46.1% of respondents, followed by hospital with 35.1% and then by PS with 18.7%.
 - More the management of care was heavy, more the proportion of respondents who prefer hospital increased: for palliative scenario, hospital was the first choice for 49% of the sample, followed by home 29.5 % and PS 21.4%
 - PS was the second preferred option for more than 50% of respondents whatever the scenario
 - **Preferences' determinants for home care** (or alternative structure for Nested Logit)
 - Safety, wishing to separate home and place of care, thinking that home is not adapted to care, were strongly significant for all scenarios.
 - Wishing to avoid meeting other patients, having a bad experience of home care were significant for S1 and S2.
 - Wishing to avoid waiting times was significant for all scenarios, but depending of the model used.
 - Wishing to avoid being a burden for his relative increased the odds to prefer hospital and thinking that family can take care of him decreased the odds to prefer hospital in S2 & S3.
 - Determinants of preferences for PS are unclear and few are significant which seems to confirm that preferences for PS are not well defined.
- **Contingent valuation survey**
 - **Acceptability**
 - The few number of protest responses, less than 8 %, and outliers (only one at maximum per scenario) tended to confirm the acceptability of the CV method.
 - **Validity**
 - The mean WTP tendency increased when the scenario was heavier, but the difference was not so high: the $WTP_{S1home}=15.7\text{€}$ /per household/month, $WTP_{S2home}=17.0\text{€}$, $WTP_{S3home}=19.1\text{€}$, for PS $WTP_{S1PS}=13.9\text{€}$, $WTP_{S2PS}=16.1\text{€}$ $WTP_{S3PS}=17.6\text{€}$ maybe caused by a proximal order effect.
 - The multivariate analysis of WTP showed a correlation between income, strength of preferences and WTP that seemed to confirm the validity of the WTP.
 - However, the mean WTP was not correlated with perception of risk, number of people in the household.
 - **Follow-up question**
 - Results are mitigated. Indeed, the adjustment of the interval model seemed to be slightly improved, we lost 30% of the sample.

6 Chapter 4: Comparison between patients' and general population's preferences

6.1 Introduction

(Smith and Sach, 2010c) in their literature review conducted on CV surveys in healthcare showed that 72 % elicited only the use value. Moreover, they pointed out that a large majority of these surveys (75%) has been realized among patients or a convenient sample like students or seminar participants. Additionally, they highlighted that less than 25% of studies have been conducted among the general population and estimated the option value or externalities, whereas these points are often mentioned as major advantages of CV surveys (Olsen and Smith, 2001). Authors (Smith and Sach, 2010c) deplored such a situation and argued that in policy settings an *ex-ante* approach is more relevant and should be encouraged. However, the question of adequacy between option value and used value is raised and could explain the lack of option values estimations. Indeed, the risk associated with an *ex ante* valuation is the potential difference between preferences elicited at the point of consumption as compared to preferences elicited before consumption.

Our aim in this Chapter 4 was to compare preferences at these two moments, thus comparing outcomes obtained in Chapter 2 among cancer patients to those obtained in Chapter 3 among the general population.

Our study we developed in the context of a cost-benefit analysis. We thus assumed that option value is more relevant especially in the case of an organizational innovation where implementing the innovation and then going back in case of failure is impossible.

6.2 Methods

6.2.1 Data

The same methodology as the one presented in previous chapters has been used.

Data obtained among patients were collected using the touch pad tool when patients were in hospitals, whereas respondents from the general population responded to a questionnaire available online on a secured website.

Whatever the population, the sequence of questions was the same, as well as the decision aid that presented the 3 options. The CV survey presented in Chapter 3 was included after the first section on preferences' elicitation (see Appendice 5 Enquête en population générale version papier).

6.2.2 Econometric specification

To allow comparisons between patients and the general population, we considered a dependent variable equal to 0 if respondents preferred hospital and equal to 1 if respondents preferred alternative structures (home and proximity structures) in a binary logistic regression. Because of the low number of patients who preferred proximity structures, it was not possible to consider the 3 options. We thus decided for the 2 sub-populations to preserve the same structure model and to gather home and proximity structures for comparisons. We estimated 3 models, one for each sub-population (patient and general population) and one for the whole sample adjusted on sociodemographic characteristics. Finally, ROL models have been estimated.

6.3 Results

Socio-demographic characteristics

Patients' and the general population's socio-demographic characteristics are presented in Table 29 Description of patients' and general population's characteristics. As expected, the general population sample was younger than the patients' one, respectively mean age of 46.0 ± 14.8 years and 59.8 ± 13.3 . The proportion of respondents who had a university degree was higher in the general population as compared to patients, 58.7% versus 29.6% respectively. Moreover, more patients were inactive (this variable took into account the time of diagnosis for patients) 60.6 %, as compared to the general population, 37.5 %.

Cancer and experience of care

Concerning cancer and experience of care, 55% of the general population has a relative who already had a cancer as compared to 47.4% for patients, and 37% already had care at home care versus 58.8% for patients (Table 30).

Table 29 Description of patients' and general population's characteristics

N	Patients 386	General population 1001	Whole sample 1387
Age, years mean (SD)	59,8 (13,3)	46,0 (14,8)	49,9 (15,6)
Gender Male	176 (45,6%)	494 (49,4%)	670 (48,3%)
Marital status			
Not Partnered	105 (27,5%)	294 (29,4%)	399 (28,9%)
Partnered	277 (72,5%)	707 (70,6%)	984 (71,1%)
Education level			
Primary school	99 (25,7%)	44 (4,4%)	143 (10,3%)
Secondary	172 (44,7%)	369 (36,9%)	541 (39,0%)
University	114 (29,6%)	588 (58,7%)	702 (50,6%)
Employment			
Unemployed	226 (59,0%)	396 (39,6%)	622 (44,9%)
Employed	157 (41,0%)	605 (60,4%)	762 (55,1%)
Socio-professional category			
High	70 (18,5%)	312 (31,2%)	382 (27,7%)
Low	79 (20,9%)	314 (31,4%)	393 (28,5%)
Inactive	229 (60,6%)	375 (37,5%)	604 (43,8%)
Annual household income			
<12.000€	36 (9,3%)	111 (11,1%)	147 (10,6%)
12.000€ to <24.000€	116 (30,1%)	212 (21,2%)	328 (23,6%)
24.000€ to <36.000€	106 (27,5%)	234 (23,4%)	340 (24,5%)
36.000€ to <60.000€	75 (19,4%)	242 (24,2%)	317 (22,9%)
>60.000€	19 (4,9%)	134 (13,4%)	153 (11,0%)
Missing	34 (8,8%)	68 (6,8%)	102 (7,4%)
Children at home			
No	283 (74,1%)	651 (65,0%)	934 (67,5%)
Yes	99 (25,9%)	350 (35,0%)	449 (32,5%)
Number of persons living at home			
1	81 (21,0%)	159 (15,9%)	240 (17,3%)
2	205 (53,1%)	412 (41,2%)	617 (44,5%)
3	47 (12,2%)	179 (17,9%)	226 (16,3%)
4	29 (7,5%)	174 (17,4%)	203 (14,6%)
>4	24 (6,2%)	77 (7,7%)	101 (7,3%)
Distance from home to hospital			
<5 km	42 (10,9%)	345 (34,5%)	387 (27,9%)
5 km to 15 km	81 (21,0%)	355 (35,5%)	436 (31,4%)
15 km to 30 km	70 (18,1%)	243 (24,3%)	313 (22,6%)
>30km	193 (50,0%)	58 (5,8%)	251 (18,1%)
Quality of Life			
Excellent/very good	53 (13,7%)	227 (22,7%)	280 (20,2%)
Good	167 (43,3%)	713 (71,2%)	880 (63,4%)
Good enough	134 (34,7%)	61 (6,1%)	195 (14,1%)
Poor/very poor	32 (8,3%)	0 (0,0%)	32 (2,3%)

Table 30 Experience of the different places of care among each sub-sample

Levels	Patients (n=386)	General population (n=1001)
N	n (%)	n (%)
<u>Respondent's personal experience</u>		
Cancer	386 (100%)	72 (7,26%)
Hospital		
No	0 (100%)	261 (26,1%)
Yes	386 (100,0%)	740 (73,9%)
Home care		
No	159 (41,2%)	630 (62,9%)
Yes	227 (58,8%)	371 (37,1%)
Home care for heavy care in cancer		
No	293 (75,9%)	987 (98,6%)
Yes	93 (24,1%)	14 (1,4%)
PS in cancer		
No	368 (95,3%)	993 (99,2%)
Yes	18 (4,7%)	8 (0,8%)
PS for heavy care in cancer		
No	371 (96,1%)	993 (99,2%)
Yes	15 (3,9%)	8 (0,8%)
<u>Respondent's relatives experience</u>		
Relatives who already had a cancer		
No	199 (51,6%)	439 (43,9%)
Yes	183 (47,4%)	551 (55,0%)
I do not wish to answer this question	4 (1,0%)	11 (1,1%)
Home care for cancer		
No	330 (86,4%)	811 (81,0%)
Yes	52 (13,6%)	190 (19,0%)
Proximity structure for cancer		
No	374 (97,9%)	970 (96,9%)
Yes	8 (2,1%)	31 (3,1%)
Home care		
No	274 (71,7%)	489 (48,9%)
Yes	108 (28,3%)	512 (51,1%)

Description of preferences according to the type of care

Table 31 shows that whatever the type of care except for surgery follow-up (a care usually done at home whatever the pathology), the proportion of respondents who preferred alternative structures (home & PS) rather than hospital was higher in the general population as compared to patients. This difference is partly explained by the proportion of respondents in the general population who preferred PS which was higher than in the patients' population. Indeed, for antibiotics in infusion, enteral or parenteral feeding and treatment against pain in infusion, the proportion of respondents who preferred home care was quite

the same, for example for antibiotics 47.6 % of patients versus 50.6 % in the general population preferred home care, but 3.7% of patients and 15 % of the general population preferred PS.

For chemotherapy, 75.6 % of patients and 58 % of the general population preferred hospital, proportions that increase to 83.8 % and 63.5 % for patients and the general population respectively for blood transfusion.

Moreover, if we consider the preference whatever the type of care (Table 32), hospital was the preferred choice for 70.9 % of patients and 42.6 % of the general population followed by homecare, 24.1 % for patients and 38.9% for the general population. The option less often chosen as the preferred one was PS for 5 % of patients versus 18.6% for the general population.

Table 31 Preferences depending on the type of care for patients and the general population

Levels	Patients	General population
Chemotherapy		
Hospital	291 (75.6%)	580 (57.9%)
Home	84 (21.8%)	280 (28.0%)
PS	10 (2.6%)	141 (14.1%)
Antibiotics in infusion		
Hospital	171 (48.7%)	344 (34.4%)
Home	167 (47.6%)	507 (50.6%)
PS	13 (3.7%)	150 (15.0%)
Enteral or parenteral feeding		
Hospital	182 (52.9%)	427 (42.7%)
Home	150 (43.6%)	450 (45.0%)
PS	12 (3.5%)	124 (12.4%)
Blood transfusion		
Hospital	294 (83.8%)	636 (63.5%)
Home	46 (13.1%)	226 (22.6%)
PS	11 (3.1%)	139 (13.9%)
Follow-up surgery care		
Hospital	61 (16.6%)	187 (18.7%)
Home	301 (82.0%)	753 (75.2%)
PS	5 (1.4%)	61 (6.1%)
Treatment against pain in infusion		
Hospital	160 (44.7%)	324 (32.4%)
Home	190 (53.1%)	562 (56.1%)
PS	8 (2.2%)	115 (11.5%)

Table 32 Rankings of preferences and strength of preferences in each sub-population

First choice	Patient		General population	
	n (%)	VAS score Mean ± SD	n (%)	VAS score Mean ± SD
Hospital	271 (70.9%)	8.0±1.7	426 (42.6%)	8.0±1.6
Home	92 (24.1%)	7.9±1.5	389 (38.9%)	8.5±1.6
PS	19 (5.0%)	7.0±2.1	186 (18.6%)	8.2±1.4
Second choice				
Hospital	73 (19.1%)		207 (20.7%)	
Home	153 (40.1%)		273 (27.3%)	
PS	156 (40.8%)		521 (52.0%)	
Third choice				
Hospital	38 (10.0%)		368 (36.8%)	
Home	136 (35.8%)		339 (33.9%)	
PS	206 (54.2%)		294 (29.4%)	

Table 33 shows the difference in attitudes concerning care in general in the two populations. For example, 54% of patients thought that hospital was safer than home, whereas they were only 31% in the general population. Moreover, 53 % of the general population declared that it could be difficult for them to meet other patients, versus 29 % in the patient's sample. These differences could be explained partly by the difference in socio-demographic characteristics, but also by the experience of care.

Chapter 4: Comparison between patients' and general population's preferences

Table 33 Proportions of respondents who were agree with each proposition in patients' and the general population samples

Preferred option	Patient				General population			
	Hospital	Home	PS	Total	Hospital	Home	PS	Total
I want to limit my trips	198 (73.9%)	84 (91.3%)	16 (84.2%)	299 (78.5%)	347 (81.5%)	346 (88.9%)	165 (88.7%)	858 (85.7%)
I want to limit my waiting times	221 (82.2%)	86 (93.5%)	17 (89.5%)	326 (85.3%)	378 (88.7%)	370 (95.1%)	181 (97.3%)	929 (92.8%)
I want to stay close to my family	231 (87.8%)	85 (94.4%)	18 (94.7%)	335 (89.6%)	370 (86.9%)	360 (92.5%)	166 (89.2%)	896 (89.5%)
I want to change as little as possible my habits and my way of life	231 (85.9%)	88 (95.7%)	17 (89.5%)	338 (88.5%)	348 (81.7%)	361 (92.8%)	167 (89.8%)	876 (87.5%)
I want to separate place of care and home	197 (73.5%)	26 (28.6%)	14 (73.7%)	239 (62.9%)	324 (76.1%)	118 (30.3%)	118 (63.4%)	560 (55.9%)
I'm afraid of being a burden to my family	194 (73.2%)	57 (62.6%)	15 (78.9%)	268 (71.1%)	353 (82.9%)	278 (71.5%)	152 (81.7%)	783 (78.2%)
It is difficult for me to be with other patients	68 (25.4%)	32 (35.2%)	8 (42.1%)	109 (28.7%)	183 (43.0%)	252 (64.8%)	95 (51.1%)	530 (52.9%)
I feel alone at home	60 (22.6%)	12 (13.2%)	4 (21.1%)	76 (20.2%)	252 (59.2%)	118 (30.3%)	100 (53.8%)	470 (47.0%)
Care provided outside allow to see other persons	148 (56.1%)	35 (38.5%)	14 (73.7%)	199 (52.9%)	349 (81.9%)	259 (66.6%)	155 (83.3%)	763 (76.2%)
I think that at home caregivers are more available	87 (34.7%)	43 (48.3%)	6 (33.3%)	136 (37.9%)	206 (48.4%)	263 (67.6%)	106 (57.0%)	575 (57.4%)
In case of additional costs related to my illness for my home care, I do not have the means to support them financially	144 (56.2%)	52 (60.5%)	12 (63.2%)	210 (57.9%)	302 (70.9%)	228 (58.6%)	119 (64.0%)	649 (64.8%)
It is difficult for me to make daily tasks	137 (52.5%)	42 (46.2%)	13 (68.4%)	192 (51.6%)	359 (84.3%)	306 (78.7%)	144 (77.4%)	809 (80.8%)
Hospital is frightening	55 (21.0%)	38 (41.8%)	8 (42.1%)	102 (27.3%)	197 (46.2%)	260 (66.8%)	121 (65.1%)	578 (57.7%)
The trips are painful for me	66 (25.1%)	43 (47.3%)	7 (36.8%)	116 (30.9%)	315 (73.9%)	338 (86.9%)	140 (75.3%)	793 (79.2%)
I think that my family can take care of me	181 (69.1%)	76 (85.4%)	11 (57.9%)	268 (71.8%)	247 (58.0%)	277 (71.2%)	113 (60.8%)	637 (63.6%)
I think that safety is better in hospital rather than at home	142 (56.8%)	32 (37.6%)	17 (89.5%)	192 (53.8%)	283 (66.4%)	174 (44.7%)	147 (79.0%)	604 (60.3%)
I had bad experience in home care	12 (4.8%)	1 (1.1%)	0 (0.0%)	13 (3.6%)	62 (14.6%)	29 (7.5%)	22 (11.8%)	113 (11.3%)
Hospital is safer than home	159 (60.0%)	35 (40.7%)	5 (27.8%)	199 (53.93%)	171 (40.1%)	93 (23.9%)	45 (24.2%)	309 (30.87%)
PS are less safe than hospital	92 (37.5%)	16 (19.8%)	2 (11.1%)	110 (32.0%)	95 (22.3%)	49 (12.6%)	20 (10.8%)	164 (16.38%)

Table 34 compares the determinants of preferences estimated with a logit model with the dependent variable equal to 1 if the respondent preferred alternative structure and equal to 0 otherwise. A descendent step method has been used to select variables. Indeed, a variable has been kept in the model if it was significant at 10 % and was withdrawn otherwise. Age, sex, safety perception and experience of care have been forced in each model.

Doing so, increasing the age by one year decreased the odds to prefer alternative structure (home or PS) to approximatively 1 %, keeping everything else constant ($p_{GP}<0.10$, $p_p<0.10$, $p_{all}<0.05$).

Moreover, several variables were significant whatever the sample:

Wanting to preserve his lifestyle increased the odds to prefer alternative structures (home or PS) by a factor of 1.77 in the general population, 3.69 for patients and 1.9 for the whole sample ($p_{GP}<0.05$, $p_p<0.05$, $p_{all}<0.01$).

If a respondent wanted to separate home and place of care, the odds to prefer proximity structure decreased by a factor of 0.27 in the general population, 0.21 for patients and 0.27 for the whole sample keeping all other variables constant ($p_{GP}<0.01$, $p_p<0.01$, $p_{all}<0.01$).

Thinking that hospital was frightening increased by a factor of 1.76 in the general population, 2.4 for patients and 1.84 for the whole sample the odds to prefer alternative structures ($p_{GP}<0.01$, $p_p<0.01$, $p_{all}<0.01$).

Finally, the variables related to the experience of care were not significant and the dummy variable which took the value 0 if the respondent was a patient or 1 otherwise (in the model with the whole sample) showed that the odds to prefer alternative structures increased by factor of 2.4 for the general population as compared to patients, holding all other variables constant ($p_{all}<0.01$). Moreover, because we thought that coefficients could be different between patients and the general population samples, we tested the addition in the model on the whole sample, of interaction variables to estimate separated coefficients for the two populations, but these coefficients were not significant.

Table 34 Logit model on respondents' preferences (0 if hospital /1 otherwise) according to each sub-sample

	General population		Patients		All sample	
	Odds ratio	SD	Odds ratio	SD	Odds ratio	SD
Female	0.855	(0.129)	1.179	(0.327)	0.936	(0.127)
Age	0.991*	(0.00521)	0.981*	(0.0108)	0.989**	(0.00486)
Socio-professional category (ref : high)						
Low					0.716*	(0.130)
Inactive					0.935	(0.164)
Education						
Secondary (ref primary)					0.807	(0.193)
University (ref primary)					0.717	(0.179)
PS less safe than hospital						
Yes	0.718	(0.147)	0.504*	(0.183)	0.660**	(0.117)
Missing	.	.	1.210	(0.577)	1.048	(0.475)
Home is less safe than hospital						
Yes	0.518***	(0.0866)	0.743	(0.225)	0.564***	(0.0827)
Missing	.	.	5.254**	(4.069)	3.226*	(2.205)
Avoid the trips (agree)			3.325***	(1.377)		
limit my waiting time (agree)	2.026**	(0.586)			2.063***	(0.522)
Preserve its lifestyle (agree)	1.771**	(0.399)	3.689**	(1.942)	1.912***	(0.394)
Separate home and place of care (agree)	0.266***	(0.0415)	0.212***	(0.0606)	0.270***	(0.0367)
Avoid to be a burden for my relatives (agree)			0.584*	(0.181)	0.748*	(0.122)
Avoid meeting other patients (agree)	1.581***	(0.244)			1.431***	(0.198)
To be afraid to be alone at home (agree)	0.601***	(0.0911)			0.655***	(0.0934)
Daily tasks could be difficult (agree)					0.756*	(0.123)
Hospital is frightening (agree)	1.761***	(0.278)	2.407***	(0.712)	1.840***	(0.259)
Trips could be painful (agree)					1.550***	(0.244)
Relatives who has already had a cancer						
yes	0.835	(0.126)			0.771**	(0.102)
missing	0.309	(0.223)			0.335*	(0.222)
Experience of home care	0.917	(0.147)	0.997	(0.279)	0.922	(0.123)
Quality of Life (ref excellent/very good)						
Good/ Good enough	0.994	(0.176)	2.651**	(1.202)		
Poor/very poor	0.542*	(0.185)	2.375*	(1.130)		
Missing	.	.	1.377	(0.922)		
Experience of hospital population (ref patient)	0.982	(0.179)			2.418***	(0.468)
N	1001		368		1357	
Iroc	0.7719		0.8116		0.8015	
AIC	1165.8		378.3		1520	
BIC	1249		440.9		1645	
R2	0.1711		0.2256		0.2174	

* p<0.10, ** p<0.05, *** p<0.01

Chapter 4: Comparison between patients' and general population's preferences

Table 35 Rank ordered logit for the whole sample to explain respondent's ranking preferences for each option

	Coef.	Std.	p-value	ΔOdds %
Alternative specific variable				
Order of presentation of the options				
2	-0.013	0.064	0.836	-1.3
3	-0.138**	0.065	0.033	-12.9
Home				
Female	0.024	0.128	0.851	2.4
Age	-0.012***	0.005	0.009	-1.2
Socio-professional category (ref : high)				
Low	-0.167	0.170	0.325	-15.4
Inactive	0.026	0.163	0.874	2.6
Education				
Secondary (ref primary)	-0.514**	0.226	0.023	-40.2
University (ref primary)	-0.680***	0.236	0.004	-49.3
PS less safe than hospital				
Yes	-0.375**	0.169	0.027	-31.3
Missing	-0.047	0.462	0.920	-4.5
Home less safe than hospital				
Yes	-0.691***	0.139	0.000	-49.9
Missing	1.296**	0.634	0.041	265.5
Limit my waiting time (agree)	0.617***	0.239	0.010	85.4
Preserve my lifestyle (agree)	0.688***	0.199	0.001	99.0
Separate home and place of care (agree)	-1.761***	0.126	0.000	-82.8
Avoid to be a burden for my relatives (agree)	-0.389***	0.148	0.009	-32.2
Avoid meeting other patient (agree)	0.492***	0.130	0.000	63.6
to be afraid to be alone in home (agree)	-0.655***	0.133	0.000	-48.1
Hospital is frightening (agree)	0.512***	0.133	0.000	66.9
the trips could be painful (agree)	0.538***	0.147	0.000	71.3
I think my family can take care of me (agree)	0.400***	0.131	0.002	49.3
Relatives who has already had a cancer				
yes	-0.191	0.126	0.131	-17.4
missing	-1.529**	0.747	0.041	-78.3
Experience of home care	-0.075	0.126	0.553	-7.2
Relative's experience of home care	0.128	0.128	0.314	13.7
population general (ref : patient)	0.876***	0.195	0.000	140.2
Constant	-0.136	0.483	0.778	-12.7
PS				
Female	0.081	0.121	0.501	8.5
Age	0.002	0.004	0.580	0.2
Socio-professional category (ref : high)				
Low	-0.369**	0.163	0.024	-30.8
Inactive	-0.363**	0.154	0.019	-30.4
Education				
Secondary (ref primary)	-0.095	0.225	0.674	-9.0
University (ref primary)	-0.169	0.232	0.466	-15.6
PS less safe than hospital				
Yes	-0.496***	0.165	0.003	-39.1
Missing	0.329	0.449	0.464	38.9
Home less safe than hospital				
Yes	-0.446***	0.133	0.001	-36.0
Missing	1.050*	0.634	0.098	185.6
limit my waiting time (agree)	0.563**	0.230	0.014	75.6
Preserve its lifestyle (agree)	0.152	0.185	0.413	16.4
Separate home and place of care (agree)	-0.805***	0.121	0.000	-55.3
Avoid to be a burden for my relatives (agree)	-0.143	0.142	0.314	-13.3
Avoid meeting another patient (agree)	0.260**	0.124	0.036	29.6
to be afraid to be alone in home (agree)	-0.118	0.126	0.349	-11.1
Hospital is frightening (agree)	0.484***	0.127	0.000	62.2
the trips could be painful (agree)	0.247*	0.142	0.083	28.0

I think my family can take care of me (agree)	0.095	0.124	0.444	10.0
Relatives who has already had a cancer				
yes	-0.201*	0.121	0.098	-18.2
missing	-0.987	0.676	0.144	-62.7
Experience of home care	-0.075	0.120	0.531	-7.2
Relative's experience of home care	-0.008	0.122	0.946	-0.8
Constant	-1.492***	0.467	0.001	-77.5
population general (ref : patient)	1.235***	0.196	0.000	243.8
N		1350		
AIC		4111		
BIC		4439		
ll		-2003		
chi2		827***		

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 35 provides the estimations of the ROL model for the whole sample, interpretations are made all other things equal.

Respondents who have a secondary or a university degree have respectively 40.2% ($p_{all}=0.023$) and 49.3% lower ($p_{all}=0.004$) odds than respondents who have a primary degree to rank home before hospital. Thinking that home was less safe than hospital decreased the odds to prefer home of 50% ($p_{all}<0.001$). Wanting to limit waiting times ($p_{all}=0.010$) and to preserve lifestyle ($p_{all}=0.001$) have the highest influence and increased the odds to rank home before hospital by 82.4 % and 99 % respectively.

Moreover, the general population has 140 % higher odds than patients to rank home before hospital ($p_{all} < 0.001$).

Concerning PS, being inactive ($p_{all}=0.019$) or having a low socio-professional category ($p_{all}=0.024$) decreased the odds to rank PS before hospital as compared to high socio-professional category, by 30.4% and 30.8% respectively, all other things equal ($p_{all}=0.019$).

Thinking that PS was less safe than hospital decreases by 39% the odds to rank proximity structure before hospital ($p_{all}=0.003$). Moreover, wanting to limit waiting times ($p_{all}=0.014$) and to think that hospital was frightening ($p_{all}<0.001$) were the most influencing variables and increased the odds to rank proximity structures before hospital by 75.6% and 62% respectively. Finally, the general population has 243% higher odds to rank proximity structures before hospital. Because we thought that coefficients could be different between patients and the general population samples, like logit model, we tested the addition of interaction variables to estimate separated coefficients for the two populations, but these coefficients were not significant. Table 36 provided the estimations of the ROL models for patients and the general population respectively.

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Table 36 Rank ordered logit to explain patients' ranking preferences for the options

	Coef.	Std.	p	ΔOdds %
Home				
Female	-0.002	0.267	0.995	-0.2
Age	-0.019*	0.011	0.077	-1.9
Education				
Secondary (ref primary)	-0.649*	0.335	0.053	-47.7
University (ref primary)	-0.579	0.387	0.134	-44.0
PS less safe than hospital				
Yes	-0.537	0.349	0.124	-41.5
Missing	-0.099	0.487	0.840	-9.4
Home less safe than hospital				
Yes	-0.490	0.302	0.104	-38.7
Missing	1.796**	0.730	0.014	502.6
Avoid the trips (agree)	1.394***	0.411	0.001	303.1
Preserve its lifestyle (agree)	1.265***	0.467	0.007	254.2
Separate home and place of care (agree)	-2.196***	0.282	0.000	-88.9
Avoid to be a burden for my relatives (agree)	-0.516*	0.299	0.084	-40.3
Daily task could be difficult (agree)	-0.649**	0.273	0.017	-47.8
Hospital is frightening (agree)	0.868***	0.292	0.003	138.1
Quality of Life ref excellent/very good				
Good/ Good enough	1.358***	0.448	0.002	288.6
Poor/very poor	1.347***	0.479	0.005	284.7
Missing	0.556	0.652	0.394	74.3
Experience of home care	0.002	0.272	0.993	0.2
Relative's experience of home care	0.313	0.293	0.285	36.8
Constant	-1.171	0.936	0.211	-69.0
PS				
Female	0.167	0.271	0.538	18.2
Age	-0.006	0.011	0.618	-0.5
Education				
Secondary (ref primary)	-0.567*	0.343	0.098	-43.3
University (ref primary)	-0.167	0.388	0.667	-15.4
PS less safe than hospital				
Yes	-0.975***	0.368	0.008	-62.3
Missing	0.308	0.468	0.510	36.1
Home less safe than hospital				
Yes	-0.124	0.306	0.686	-11.6
Missing	1.521**	0.715	0.033	357.6
Avoid trips (agree)	1.573***	0.438	0.000	382.3
Preserve his/her lifestyle (agree)	0.041	0.456	0.929	4.1
Separate home and place of care (agree)	-1.119***	0.289	0.000	-67.3
Avoid to be a burden for my relatives (agree)	-0.309	0.306	0.314	-26.6
Daily tasks could be difficult (agree)	-0.076	0.277	0.784	-7.3
Hospital is frightening (agree)	0.710**	0.298	0.017	103.3
Quality of Life ref excellent/very good				
Good/ Good enough	0.897**	0.447	0.045	145.3
Poor/very poor	0.804*	0.479	0.093	123.5
Missing	0.005	0.677	0.994	0.5
Experience of home care	-0.247	0.274	0.366	-21.9
Relative's experience of home care	-0.085	0.302	0.780	-8.1
Constant	-2.331*	0.959	0.015	-90.3
N		362.0		
AIC		970.8		
BIC		1170.4		
ll		-445.4		
chi2		402.81***		

(* p<0.10, ** p<0.05, *** p<0.01)

Table 37 Rank ordered logit to explain GP's ranking preferences for the options

rank	Coef.	Std.	p-value	ΔOdds %
order				
2	-0.013	0.064	0.837	-1.3
3	-0.134**	0.065	0.039	-12.5
Home				
Female	0.012	0.148	0.938	1.2
Age	-0.011**	0.005	0.031	-1.1
Socio-professional category (ref : high)				
Low	-0.114	0.179	0.523	-10.8
Inactive	0.037	0.176	0.833	3.8
PS less safe than hospital				
Yes	-0.342*	0.199	0.086	-29.0
Home less safe than hospital				
Yes	-0.730***	0.159	0.000	-51.8
I limit my waiting time (agree)	0.566**	0.288	0.050	76.1
Preserve its lifestyle (agree)	0.597***	0.222	0.007	81.7
Separate home and place of care (agree)	-1.687***	0.144	0.000	-81.5
Avoid to be a burden for my relatives (agree)	-0.393**	0.174	0.024	-32.5
Avoid meeting another patient (agree)	0.632***	0.146	0.000	88.2
To be afraid to be alone in home (agree)	-0.697***	0.145	0.000	-50.2
Hospital is frightening (agree)	0.452***	0.150	0.003	57.1
the trips could be painful (agree)	0.537***	0.176	0.002	71.1
I think my family can take care of me (agree)	0.468***	0.145	0.001	59.8
Relatives who has already had a cancer				
yes	-0.148	0.145	0.309	-13.8
missing	-1.391*	0.736	0.059	-75.1
Experience of home care	-0.125	0.144	0.385	-11.8
Relative's experience of home care	0.057	0.143	0.689	5.9
Constant	0.165	0.462	0.720	18.0
PS				
Female	0.048	0.135	0.724	4.9
Age	0.003	0.005	0.534	0.3
Socio-professional category (ref : high)				
Low	-0.360**	0.166	0.030	-30.3
Inactive	-0.335**	0.163	0.040	-28.5
PS less safe than hospital				
Yes	-0.345*	0.186	0.064	-29.2
Home less safe than hospital				
Yes	-0.535***	0.149	0.000	-41.4
To limit my waiting time (agree)	0.553**	0.266	0.038	73.9
Preserve its lifestyle (agree)	0.251	0.204	0.217	28.6
Separate home and place of care (agree)	-0.724***	0.135	0.000	-51.5
Avoid to be a burden for my relatives (agree)	-0.109	0.161	0.500	-10.3
Avoid meeting another patient (agree)	0.248*	0.135	0.067	28.1
To be afraid to be alone in home (agree)	-0.142	0.136	0.297	-13.3
Hospital is frightening (agree)	0.472***	0.140	0.001	60.3
the trips could be painful (agree)	0.146	0.164	0.374	15.7
I think my family can take care of me (agree)	0.126	0.135	0.350	13.4
Relatives who has already had a cancer				
yes	-0.194	0.136	0.153	-17.6
missing	-0.958	0.674	0.155	-61.6
Experience of home care	-0.052	0.134	0.700	-5.0
Relative's experience of home care	0.004	0.134	0.975	0.4
Constant	-0.491	0.426	0.249	-38.8
N		1001		
AIC		3198		
BIC		3450		
ll		-1557		
chi2		473.45***		

* p<0.10, ** p<0.05, *** p<0.01

6.4 Discussion

The comparison of preference between patients and the general population is interesting for several reasons:

Data provided information about individuals' perceptions of these different structures. It is thus interesting to highlight that individuals from the general population more often think that alternative structures are as safe as hospital as compared to patients. Indeed, only 31% of the general population thought that hospital was safer than home as compared to 54% for patients. Moreover, the wish to separate home and place of care seemed to be one of the major barrier for both patients and the general population. However, both populations preferred hospital as their first choice, but the proportions were very different. Indeed, hospital was the preferred option for 71% of patients and only for 42.6% of the general population. Moreover, as compared to patients, the general population more often preferred PS, respectively 18.6% and 5 %. This result can be explained by a higher difficulty for patients to think about a structure that they did not experience.

These differences could also be explained by the differences in socio demographic characteristics. As expected the general sample was youngest, better educated and with higher socio-professional categories. Our multinomial models allowed to adjust preferences on these characteristics, but with some limitations. Indeed, the logit models needed to gather the two alternative structures. However, according to the attitudinal questions proximity structure could be gathered with hospital too.

Concerning the ROL models, conditions of applicability did not hold, but as often, variables strongly significant in a model stay the same, whatever the models. This model has the advantage to study separately the coefficient for home and proximity structure and to use the whole information provided by the ranking. These models provide several interesting results: even with adjustment, the general population has an odd to prefer an alternative structure increased by a factor of 2.4 in the logit model. In the ROL model, the general population has an odd to rank home before hospital, 140 % higher than patients, and an odd to rank proximity structure before hospital 243 % higher. Finally, we tested interactions between the two populations, but they were not significant as expected.

7 *General conclusion*

Over the past decade, the relation between physicians and patients has considerably evolved. Patients wish to be increasingly informed and involved in decisions concerning their health (Härter et al., 2017). Not only an ethical argument, taking into account patients' preferences could improve both quantity and quality of life (Dirksen et al., 2013). Unfortunately, in routine medical practice, patients' preferences are rarely elicited (Murphy, 2008) even if health policies emphasize them, as it is the case in France with the recent National Health Strategy (French Ministry of Health, 2017).

These same policy decision makers confirmed their wish to develop alternative structures to hospital to answer the increasing demand and with the idea that hospital is too expensive and that alternative structures could be cost-saving.

In cancer, proximity structures and home care are presented as potential and promising alternatives to hospital. Although, hospital at home exists since several years in France, this management of care is still rarely developed and represents less than 1% of chemotherapies and only 4 % of hospitalisation days for all pathologies (DREES, 2017a).

Patients' preferences in this area have been little studied, although home care could be intrusive and perceived as doing more harm than good for patients and their relatives. A cancer patient could be difficult to manage at home and could disrupt the discontinuity of care with an over-solicitation of emergency structures. Moreover, proximity structures could appeared as one answer to an often criticism made to the French healthcare system being too much focused on hospital.

First, to explore patients' preferences for different places of care in cancer, we developed a decision aid tool on a touch pad containing information on the three options, hospital, home, PS, collecting patients' socio-demographics characteristics, preferences and reasons of preferences. We recruited patients in three hospitals in the Rhône-Alps Region during their hospitalisations or consultations. Data were analysed on 386 patients. A large majority (71%) declared to prefer hospital followed by home (24.1%) and then by PS (5 %). To study determinants of preferences, we conducted a multivariate analysis that showed that the most discriminant reasons to explain preferences for home care or PS were: (1) the willingness to avoid the trips, (2) to preserve his lifestyle, (3) viewing hospital as frightening.

On the contrary, the willingness to separate home and place of care and avoiding being a burden for his relatives, increased the odds to prefer hospital. Neither socio-demographics characteristics, nor experience of care influenced patients' preferences. Despite the fact that we have to redress the sample to have more patients with experience of home care, 24% of our sample had an experience of home care for other care than simple follow-up surgery care. Moreover, safety has a limited impact on preferences, ie. thinking that hospital is safer than PS was significant, but thinking that hospital is safer than home was not significant.

Second, and going further than only analysing patients' preferences, in the context of the development of economic evaluations to assess the efficiency of healthcare programs, we decided to develop a contingent valuation survey administrated to a representative sample of the French general population living in the Rhône-Alps Region, as patients interviewed in the first step of our study. Our goal was also to test the acceptability and the validity the CV method, under-developed in our country, and finally to collect data allowing a comparison between option and use value gathered for a key issue in France, the development of home care and proximity structures in cancer.

We thus conducted a web-based survey. We took such a decision because, although, initial recommendations on CV survey advised to use face-to-face interviews (Arrow et al., 1993), more recent studies showed a non-inferiority of web-surveys (Lindhjem and Navrud, 2011; Yasunaga, 2008). We developed, in close collaboration with clinicians, three scenarios of cancer management, from the lightest scenario with only a short chemotherapy to palliative scenario. For each scenario respondent had to rank each option from the most preferred to the least preferred and was asked to give his WTP to benefit from his preferred option with a payment card.

The ranking of preference showed that: more the management of care was heavy, more the proportion of respondents who prefer hospital increased. For the lightest scenario with only a short chemotherapy every month for 6 to 12 months, home care was the preferred option for 46.1% of respondents, followed by hospital with 35.1% and then by proximity structure with 18.7%.

For palliative scenario, hospital was the first choice for 49% of the sample, followed by home for 29.5 % and by proximity structure for 21.4%. Interestingly, a literature review on the place of care in advanced cancer showed that the preferred place of death was home (range 49%-100%). Studies included patients, the general population and the clinicians' point of

views. However, only one study indicated a preference for hospital for 75%-79% of patients (Higginson and Sen-Gupta, 2000). Nonetheless, authors underlined the poor design of the studies. Lastly, Johnston (2014) highlighted the difference between preferences for place of care and place of death and that few studies explored preferences for a place of care.

We then conducted multivariable analysis to explore preferences' determinants: Some variables were strongly significant for all scenarios:

As expected, safety was strongly significant. The more the place of care was considered as safe, the more the odds to prefer this place increased.

Moreover, wishing to separate home and place of care and thinking that home was not adapted to care increase the odds to prefer hospital in all scenarios, whereas wishing to avoid meeting other patients, having a bad experience of home care were significant for the lightest and the medium scenario and influenced preference in the expected direction.

Wishing to avoid waiting times was significant for all scenarios, but depending on the model used, wishing to avoid being a burden for his relatives increased the odds to prefer hospital and thinking that family can take care of him decreased the odds to prefer hospital in the medium and heaviest scenarios.

The determinants of preferences seemed to be less clear for the heaviest scenario. Moreover, the determinants of preferences for proximity structures were unclear and few variables were significant which seemed to confirm that preferences for proximity structures were not well-defined.

After the survey on preferences, the contingent valuation survey aimed to collect WTP per month per household for each scenario. We decided not to ask the WTP question if respondent's preferred option was hospital. Indeed, we wanted to know how much respondents were willing to pay to develop alternative structures to hospital. Thus, in our survey, hospital was the default option and thus was considered as always available.

The few rates of protest respondents, lower than 8 % and outliers only one at maximum by scenario, tends to confirm the acceptability of the method in the general population.

The mean WTP tendency increased when the scenario was heavier, the $WTP_{S1home} = 15.7\text{€}/\text{per household}/\text{month}$, $WTP_{S2home} = 17.0\text{€}$, $WTP_{S3home} = 19.1\text{€}$, for PS $WTP_{S1PS} = 13.9\text{€}$, $WTP_{S2PS} = 16.1\text{€}$ $WTP_{S3PS} = 17.6\text{€}$.

We can exclude the presence of a proximal order effect caused by the repetition of the WTP question. However, even if the increases between scenarios were not so high, they were significant ($p < 0.001$).

Multivariate analysis of WTP showed a correlation between income, strength of preference and WTP, thus confirming the validity of the WTP. However, the mean WTP was not correlated with perception of risk, number of persons in the household.

Finally, the results of the *follow-up* question that measured the degree of certainty on respondents' WTP were not conclusive. The adjustment of the interval model seemed to be little improved according to scenario, but the results are not conformed to theory. Indeed, it is generally admitted that the mitigation of hypothetical bias decreases the mean WTP. Nonetheless, the WTP were higher for certain respondents albeit not significant for the majority of scenarios. Nonetheless, Shackley and Dixon (2014) found similar results with a payment card too.

Finally, one of the major risk of CBA is to badly anticipate patients' preferences at the point of consumption and thus not to provide good information to decision makers. To try to answer this issue, we compared preferences among patients and the general population. We used the same decision aid with the same information and the same questions for both patients and the general population. However, the survey was different between the two populations (VAS among patients and CV survey in the general population). Both populations preferred hospital as their first choice, but the proportions were very different. Hospital was the preferred option for 71% of patients and only for 42.6% of the general population. Moreover, as compared to patients, the general population more often preferred PS, respectively 18.6% and 5%. These differences could also be explained by the difference in socio demographic characteristics and obviously experiences. To adjust preferences on these variables, we thus realized multivariate analysis. These models provided several interesting results: Even with adjustment, the general population has an odd to prefer an alternative structure increased by a factor of 2.4 in the logit model (we gathered home and proximity structures due to the few number of patients who preferred PS). In the ROL model with the complete ranking of preference, the general population has an odd to rank home before hospital 140% higher than patients, and 243% higher for proximity structures before hospital.

Finally, our results showed that whatever the population, although preference for hospital is strong, the level of development of alternative structures seems to be largely inferior to what it could be. This seems to indicate that the main barrier to the development of home care is not patients' reluctance to them, but is explained by other factors. Among these possible factors we can quote: the cost, even if it is often mentioned that home care could be cost saving, few studies really proved it (Buthion et al. 2012). Moreover, depending on the perspective adopted, the result could change. Indeed, for hospital, proposing patients to be cared at home might not be the reasonable option for budget reasons. Additionally, home care is partly based on nurses and physicians. However, these healthcare professionals are not always available or willing to manage these, often heavy, types of care. Moreover, the possibility to come home depends on the local supply which varies according to where the patient lives. Finally, technical constraints, like the condition of drugs' transportation, could also explain the lower development of hospital at home.

Concerning PS, preferences for these structures are low, and not well-defined, probably due to a lack of knowledge among the general population as well as among patients, and thus a great difficulty to project oneself in such a structure. Even if these structures are growing; they are still few developed and not proposed for the moment for the management of cancer. Although, there are increasing debates concerning this type of structure and their place and role in health supply. Finally, the burden for relatives is not neglecting and could be further studied to have a complete point of view.

Contingent valuation method is largely debated (Baker et al., 2010; Smith and Sach, 2010a, 2010b, 2009). However, a large number of CV surveys have been misused, eliciting patients' preferences only. If the aim is only to measure preferences, we think that it is not useful to introduce monetary question necessarily related to budget constraint and probably resulting in protest responses especially in healthcare. If the goal is to use the considerable potential offered by CBA, it is thus central to realise a CV survey among the general population, bringing to healthcare decision makers information that he could rapidly put into practice. It is in this perspective that we will complete our study by conducting the costs evaluation.

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9 Appendice 1 Decision aids tool : French paper version

Outil d'aide à la décision : version patient

Page de titre :

Votre préférence pour un lieu de prise en charge :

L'hôpital ?

Le domicile ?

Une maison de santé proche de chez vous ?

Présentation de l'étude :

Cette étude est financée par la Ligue Nationale Contre le Cancer

Conformément à la réglementation, cette étude a obtenu les autorisations du Comité d'Ethique du Centre Léon Bérard, du Comité consultatif sur le Traitement de l'Information en matière de Recherche dans le domaine de la Santé (CCTIRS) et de la Commission Nationale de l'Informatique et des Libertés (CNIL).



Présentation générale de l'outil (vidéo):

Déroulement de l'enquête

1. Recueil de vos caractéristiques sociodémographiques (âge, situation familiale etc.)
2. Information sur les différents lieux de prise en charge
3. Recueil de votre préférence pour ces lieux de prise en charge
4. Recueil de votre expérience des soins en cancérologie ainsi que celle de vos proches
5. Recueil de votre qualité de vie



Quel est votre âge ? |__|__| ans

Sexe : homme
femme

Code postal de la commune de résidence : |__|__|__|__|__|

Quelle est votre situation familiale? (une seule réponse possible) :

- En couple : marié(e), PACS, concubinage,...
- Seul(e) : Célibataire (jamais marié (e)), veuf(ve), divorcé(e), séparé(e)...

Avez-vous des enfants ? Oui Non

Si, oui, est-ce que certains vivent encore au foyer? Oui Non

Combien de personnes vivent régulièrement dans votre foyer (y compris vous-même)?

|__|__|

Quelle est votre situation professionnelle habituelle, hors arrêt maladie (une seule réponse possible) :

- Exerce une profession
- Au chômage
- Retraité
- Sans occupation professionnelle (femme au foyer etc.)
- Étudiant, élève, en formation

Quelle est ou était votre profession principale ? (une seule réponse possible) :

- Agriculteur exploitant
- Artisan, commerçant, chef d'entreprise
- Cadre, ingénieur, profession intellectuelle supérieure
- Profession intermédiaire (institutrice, assistante sociale, infirmière libérale, travailleur social, technicien etc.)
- Employé (employé de bureau, de commerce, agent de service, aide-soignante, gardienne d'enfants, employé de la fonction publique)
- Ouvrier
- Autres

Quel est votre niveau d'études ? (une seule réponse possible) :

- Aucun diplôme, brevet des collèges, certificat d'étude
- CAP, BEP
- Baccalauréat général, technologique ou professionnel

- BAC +2 ou équivalent (DUT, BTS, DEUG, écoles des formations sanitaires ou sociales,...)
- Diplômes de second ou troisième cycle universitaire (licence, maîtrise, master, DEA, DESS, doctorat) ou diplômes de grande école.

- Autre, précisez : | _____ |

Pouvez-vous nous donner un ordre de grandeur du revenu mensuel net de votre foyer, en tenant compte de toutes les rentrées d'argent de votre foyer : salaires et revenus professionnels, allocations familiales etc. (Veuillez cocher une seule case) :

- moins de 600€
- de 600€ à 1000€
- de 1000€ à 2000€
- de 2000€ à 3000€
- de 3000€ à 5000€
- plus de 5000€
- refus ou ne sait pas

Présentation des lieux de prise en charge :

Présentation générale

TEXTE ORAL :

Vous êtes actuellement traité pour un cancer. Quand cela est possible, certains soins peuvent être réalisés aussi bien à l'hôpital, qu'à domicile ou par une structure médicale de proximité comme les maisons de santé.

A l'hôpital : ça peut être soit pour une hospitalisation d'une journée en hôpital de jour soit en hospitalisation complète avec une ou plusieurs nuits à l'hôpital.

A domicile : une prise en charge peut-être réalisée par un réseau de soins en oncologie ou par une structure d'hospitalisation à domicile

Enfin, vous pouvez également être pris en charge, par des **maisons de santé proches de chez vous** :

Elles regroupent des médecins, des infirmières des kinésithérapeutes...

Elles sont en lien avec l'hôpital qui vous suit et peuvent prendre en charge la totalité ou seulement une partie de vos soins

Quel que soit votre lieu de prise en charge, les traitements qui vous sont administrés présentent une sécurité et une efficacité identiques.

SUPPORT VISUEL :

Présentation des différents lieux de prise en charge

1. **A l'hôpital** cela peut être :
 - Soit une hospitalisation d'une journée en hôpital de jour
 - Soit en hospitalisation complète avec une ou plusieurs nuits à l'hôpital

2. **A domicile** : Une prise en charge peut-être réalisée :
 - Par un réseau de soins en oncologie ou
 - Par une structure d'hospitalisation à domicile (HAD)

3. **En maisons de santé proches de chez vous** :
 - Elles regroupent des médecins, des infirmières des kinésithérapeutes...
 - Elles sont en lien avec l'hôpital qui vous suit
 - Elles peuvent prendre en charge la totalité ou une partie de vos soins

→ Dans tous les cas, les traitements administrés présentent une sécurité et une efficacité identiques.

Présentation : hôpital

TEXTE ORAL ET SUPPORT ECRIT IDENTIQUE:

Concernant les soins délivrés à l'hôpital :

Présentation des différents lieux de prise en charge : L'hôpital

- Il s'agit d'un hôpital avec un service de cancérologie et des médecins spécialisés
- Le passage par l'hôpital est indispensable :
 - Pour une opération chirurgicale, des examens ou consulter son cancérologue.
- Une équipe composée de spécialistes de la douleur, de la nutrition, des psychologues et des assistantes sociales peut intervenir en fonction de vos besoins.
- A l'hôpital, la prise en charge est intégrale et vous décharge de toutes les tâches quotidiennes (préparation des repas, tâches ménagères etc.).
- Vous devez régler le forfait hospitalier (18€ par jour) s'il n'est pas remboursé par votre assurance complémentaire (Mutuelle).

L'hôpital peut cependant présenter certaines contraintes pour vous et vos proches : éloignement, horaire de visite, temps d'attente. Tout cela peut générer inconfort et fatigue.

Selon votre sensibilité, l'hôpital peut être un milieu rassurant ou angoissant.

Présentation : domicile

TEXTE ORAL ET ECRIT IDENTIQUE:

Concernant les soins à domicile :

Présentation des différents lieux de prise en charge : Les soins à domicile

Votre prise en charge est gérée soit par une structure dite d'hospitalisation à domicile (HAD) soit par réseau « ville-hôpital ». Ces structures peuvent être soit rattachées à l'hôpital soit indépendantes. Leur rôle est de coordonner les professionnels de santé qui vont s'occuper de vous et de gérer le matériel dont vous pouvez avoir besoin lors de votre hospitalisation à domicile tel qu'un lit d'hospitalisation ou un porte perfusion par exemple

- Vos traitements et vos soins sont prescrits et réalisés par une équipe de médecins, d'infirmières libérales, de kinésithérapeutes, de nutritionnistes ou de diététiciens, de psychologues. Tous sont le plus souvent extérieurs à l'hôpital.
- Vous pouvez désigner votre médecin de famille ou votre infirmière libérale pour faire partie de cette équipe.
- Cette prise en charge est en lien avec l'hôpital qui vous suit et permet toujours une ré-hospitalisation si nécessaire.

Pour votre sécurité, les médecins de l'hospitalisation à domicile (HAD) ou du réseau ville-hôpital assurent une permanence 24h24 et 7j/7.

Comme à l'hôpital vous pouvez bénéficier de l'aide d'une assistance sociale.

Présentation des différents lieux de prise en charge : Les soins à domicile (2)

Les traitements suivants peuvent être réalisés à domicile :

- La chimiothérapie ;
- L'alimentation parentérale (par voie veineuse) ou entérale (par sonde)
- Les soins de suite de chirurgie (pansements etc.)
- L'antibiothérapie par perfusion
- Les traitements contre la douleur (pompe à morphine etc.)

Les soins à domicile vous évitent des déplacements et vous permettent, ainsi qu'à vos proches de rester chez vous.

Comme à l'hôpital, l'intégralité des soins et du matériel nécessaire est pris en charge, vous n'aurez donc rien à payer.

Cependant, si votre état de santé nécessite l'intervention d'une aide à domicile pour les tâches quotidiennes comme les lessives, le ménage ou le portage des repas, ces frais ne sont pas toujours pris en charge cela dépend de votre revenu.

Une prise en charge à domicile peut pour vous et vos proches et être une cause de fatigue et d'anxiété.

Selon votre sensibilité, le domicile peut être un lieu rassurant ou angoissant.

Présentation : la maison de santé

TEXTE ORAL ET SUPPORT ECRIT IDENTIQUE :

La maison de santé proche de chez vous

Vous pouvez également être pris en charge dans une maison de santé. Ces maisons de santé regroupent dans un même lieu des médecins, des infirmières, des kinésithérapeutes, des psychologues, des diététiciens, des assistantes sociales.

Elles vous permettent de recevoir vos soins dans un lieu proche de chez vous, ce qui vous évite à vous et vos proches de trop grands déplacements.

De plus, vous ne dormez pas sur place, vous recevez vos soins et rentrez chez vous.

Dans une maison de santé, il se peut que vous soyez amenés à faire l'avance des frais de consultations ou des dépenses de pharmacie par exemple. Cependant, ces frais vous seront intégralement remboursés.

Selon votre sensibilité, les maisons de santé peuvent être un lieu rassurant ou angoissant.

Je vous rappelle que quelque soit votre de prise en charge les traitements qui vous sont administrés présente une efficacité et une sécurité identique.

Questionnaire de compréhension de l'information :

		Vrai	Faux
1	Les chimiothérapies administrées à l'hôpital sont plus sûres qu'à domicile		
2	Les soins à domicile peuvent être coordonnés par un réseau ou une structure d'hospitalisation à domicile		
3	Dans le cas d'une hospitalisation à domicile, vous devrez payer vos soins		
4	Vous pouvez refuser d'être soigné à domicile ou dans une maison de santé		
5	Lorsque vous êtes pris en charge à domicile ou dans une maison de santé vous ne pouvez pas bénéficier, par exemples, de conseils d'un nutritionniste ou d'un psychologue		
6	A domicile, les incidents sont plus fréquents qu'à l'hôpital		
7	Dans une maison de santé les soins sont moins sûrs qu'à l'hôpital		
8	Vous pouvez bénéficier de séances de kinésithérapie à domicile		
9	Dans une maison de santé, vous pouvez être amenés à avancer une partie des frais		
10	Une maison de santé est un établissement qui regroupe plusieurs professionnels de santé comme : des médecins, des infirmières et des kinésithérapeutes...		
11	Lorsque vous êtes pris en charge à domicile une permanence 24h24 et 7j/7 est assurée		

Votre expérience des soins :

Au cours du traitement de votre cancer, avez-vous reçu un ou plusieurs des traitements suivants :

Cocher si concerné :	Si concerné, précisez (plusieurs réponses possibles) :
<input type="checkbox"/> Chimiothérapie	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
<input type="checkbox"/> Antibiothérapie en intraveineuse	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
<input type="checkbox"/> Alimentation par perfusion ou sonde (nutrition parentérale ou entérale)	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
<input type="checkbox"/> Transfusion sanguine	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
<input type="checkbox"/> Soins de suite de chirurgie (pansement, piqure d'anticoagulant...)	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
<input type="checkbox"/> Traitement contre la douleur en perfusion	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé

Avez-vous déjà eu d'autres expériences des soins à domicile en dehors de votre cancer ?

Oui Non

Si oui, pour quel type de pathologie :

- hématologique
- cardiovasculaire
- affection neuro-dégénérative (Parkinson, Alzheimer...)
- autres précisez

- L'un de vos proches (conjoint, parent, enfant, frère ou sœur, ami) a-t-il eu un cancer au cours de ces dix dernières années? Oui Non

- Si oui, a-t-il reçu dans le cadre de son traitement contre le cancer, des soins dans l'un des lieux suivant (plusieurs réponses possibles) :

- à l'hôpital
- à domicile
- en maison de santé

L'un de vos proches a-t-il déjà bénéficié de soins à domicile pour une autre raison ?

- Oui Non

- Si oui, pour quel type de pathologie? :

- hématologique
- cardiovasculaire
- maladie neuro-dégénérative (Parkinson, Alzheimer...)
- autres, préciser

- L'un de vos proches a-t-il déjà bénéficié de soins en structure de proximité pour une autre raison ?

- Oui Non

- Si oui, pour quel type de pathologie? :

- hématologique
- cardiovasculaire
- maladie neuro-dégénérative (Parkinson, Alzheimer...)
- autres, préciser

Questionnaire préférences des patients

Pour chacun des traitements ci-dessous, veuillez cochez le lieu de prise en charge que vous préférez.

Chimiothérapie	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
Antibiothérapie en intraveineuse	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
Alimentation par perfusion (nutrition parentérale ou entérale)	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
Transfusion sanguine	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
Soins de suite de chirurgie (pansement, ...)	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé
Traitement contre la douleur en perfusion	<input type="checkbox"/> à l'hôpital <input type="checkbox"/> à domicile <input type="checkbox"/> en maison de santé

Sur la préférence pour un lieu de prise en charge (avec les EVA) :

- Si vous deviez choisir un lieu unique de prise en charge pour tous vos soins **vous préféreriez ?**

à l'hôpital

à domicile

La maison de santé proche de chez moi

Merci d'indiquer sur l'échelle la force de votre préférence pour votre premier choix

Faire mesurer sur l'EVA présentée comme suit :

0: j'ai une préférence très
faible pour ce choix

10 : j'ai une préférence très forte
pour ce choix

- **Merci d'indiquer sur l'échelle la force de votre préférence pour :**

0: j'ai une préférence très
faible pour ce choix

10 : j'ai une préférence
très forte pour ce choix

- **Merci d'indiquer sur l'échelle la force de votre préférence pour :**

0: j'ai une préférence très
faible pour ce choix

10 : j'ai une préférence très
forte pour ce choix

Pour mieux vous connaître

Etes-vous d'accord avec les propositions suivantes :

	Pas du tout d'accord	Plutôt pas d'accord	Plutôt d'accord	Tout à fait d'accord
Je souhaite limiter mes déplacements				
Je souhaite limiter mes temps d'attente				
je souhaite rester près de ma famille				
Je souhaite changer le moins possible mes habitudes et ma façon de vivre				
Je tiens à séparer lieu de soins et domicile				
J'ai peur d'être une charge pour mes proches				
Il est difficile pour moi de côtoyer d'autres malades				
Je me sens seul (e) à mon domicile				
Je pense qu'une prise en charge à l'extérieur me permet de sortir de chez moi et voir du monde				
Je pense que les soignants à domicile sont plus disponibles				
En cas de frais supplémentaire liés à ma maladie pour mon maintien à domicile, je n'ai pas les moyens de les supporter financièrement (aménagement de mon domicile...)				
Il est difficile pour moi de m'occuper des tâches quotidiennes				
Je suis angoissée par le milieu hospitalier				
Les trajets me sont pénibles				
Je me sens entouré par mes proches (famille, amis...)				
Je pense que mes proches peuvent s'occuper de moi				
Je pense que la sécurité est meilleure dans une maison de santé plutôt qu'à domicile				
J'ai eu une mauvaise expérience des soins à domicile				

Vous pensez que la sécurité est meilleure à l'hôpital qu'à domicile ?

1-OUI

2-NON

Vous pensez que la maison de santé est moins sûres que l'hôpital ?

1-OUI

2-NON

Qualité de vie :

1. Dans l'ensemble, pensez-vous que votre santé est :

- 1 Excellente • 2 Très bonne • 3 Bonne • 4 Médiocre • 5 Mauvaise

Questionnaire sur l'enquête

Avez-vous trouvé l'outil ?	
Très facile à utiliser	
Facile à utiliser	
Difficile à utiliser	
Très difficile à utiliser	
Avez-vous trouvé l'enquête ?	
Très longue	
Longue	
Ni longue, ni courte	
Courte ou très courte	
Quel est votre degré d'aisance avec les ordinateurs ?	
Très à l'aise	
A l'aise	
Ni à l'aise, ni mal à l'aise	
Mal à l'aise	
Les questions posées sont difficiles	
Tout à fait d'accord	
Plutôt d'accord	
Plutôt pas d'accord	
Pas du tout d'accord	

10 Appendice 2 Interview guide

Guide d'entretien utilisé pour le pré test de l'outil

Questions pré-test

Contenu

- Les informations fournies étaient-elles trop ou pas assez nombreuses ? (sur chacun des points)
- Quelles informations supplémentaires auriez-vous aimé avoir ?
- Les vidéos ainsi que les enregistrements sonores vous ont-ils apporté quelque chose par rapport à de l'information écrite ?
- Les liens vers des définitions vous ont-ils été utiles ?
- Auriez-vous aimé avoir des définitions sur d'autres mots ?
- Avez-vous eu besoin de cliquer sur le bouton « aide » durant votre essai ? Si oui pourquoi ?
- Quelles sont les informations que vous aimeriez trouver dans l'aide ?

Compréhension/facilité d'utilisation

- Avez-vous trouvé les **questions** faciles à comprendre ?
- Avez-vous trouvé les **informations** données faciles à comprendre ?
- Les explications sur la façon d'utiliser l'outil étaient-elles claires ?
- Avez-vous trouvé l'outil facile à manipuler, à la fois dans son utilisation et sa manipulation physique (peur de le casser...) ?
- Le fait de ne pas pouvoir revenir en arrière vous a-t-il posé problème ?
- Auriez-vous aimé avoir un tableau récapitulatif ou document papier résumant les informations principales de chacune des options ?

Présentation

- Les couleurs de la présentation vous ont-elles paru appropriées ?
- La police ainsi que la taille du texte vous convenait-elle ?
- Y-avait-il trop de texte ?

Autres

- L'enquête vous a-t-elle paru trop longue ?
- L'enquête vous a-t-elle paru intéressante ?
- Vous sentez-vous à l'aise avec les outils informatiques de manière générale ?

Appendice 3 Nested logit : patients' preferences for home care and proximity structure

(ref : hospital)

11 Appendice 3 Nested logit : patients' preferences for home care and proximity structure (ref : hospital)

	Logit			Nested logit		
	Coef.	Std. err.	p-value.	Coef.	Std. err.	p-value.
Experience of care (Yes) ref No				-0.042	0.401	0.918
Female	0.164	0.278	0.554	0.078	0.272	0.773
Age	-0.019*	0.011	0.077	-0.030***	0.009	0.001
PS less safe than hospital						
Yes	-0.686*	0.364	0.059	-0.656*	0.364	0.072
Missing	0.191	0.477	0.689	0.234	0.476	0.624
Home less safe than hospital						
Yes	-0.297	0.303	0.327	-0.298	0.301	0.322
Missing	1.656**	0.775	0.033	1.612**	0.777	0.038
Avoid the trips (agree)	1.198***	0.416	0.004	0.939**	0.369	0.011
Preserve its lifestyle (agree)	1.309**	0.528	0.013	0.876**	0.428	0.041
Separate home and place of care (agree)	-1.553***	0.286	0.000	-1.572***	0.282	0.000
Avoid to be a burden for my relatives (agree)	-0.535*	0.310	0.084	-0.568*	0.304	0.062
hospital is frightening	0.879***	0.296	0.003	0.829***	0.296	0.005
Experience of home care (Yes) ref No	-0.000	0.282	0.999			
Experience of PS (Yes) ref No	-0.055	0.614	0.929			
QoL(ref Excellent/very good)						
Good	0.978**	0.455	0.032	0.713*	0.416	0.087
Poor/Very poor	0.868*	0.477	0.069	0.704	0.456	0.123
Missing	0.323	0.670	0.629	0.178	0.654	0.786
Constant	-1.568*	0.895	0.080			
ext_hosp_tau				-0.029	0.282	0.918
hosp_tau				1.000	.	.
N. of cases		368.000			1104.000	
aic		380.321			507.834	
bic		446.759			587.941	
ll		-173.161			-237.917	
chi2		100.88***			94.1***	
Correctly classified		79.4%			84.0%	
area under ROC curve		0.81				
chi2(1) hausman =					0.0031	

* p<0.10, ** p<0.05, *** p<0.01

*Response were dichotomized according to the following rules ; disagree or strongly disagree (0) versus agree and strongly agree (1)

12 Appendix 4 Analysis of protest responses logit model

	scen1_prot			scen2_prot			scen3_prot					
	Coef.	Std. err.	p-value.	IC95.	Coef.	Std. err.	p-value.	IC95.	Coef.	Std. err.	p-value.	IC95.
Gender female (ref male)	0.177	0.393	0.652	-0.594,0.948	0.031	0.352	0.930	-0.658,0.720	0.199	0.403	0.621	-0.590,0.989
Age (years)	0.030	0.015	0.054	-0.001,0.060	0.027	0.014	0.053	-0.000,0.054	0.020	0.015	0.195	-0.010,0.050
Socio-professional category (ref : high)												
Low	0.546	0.536	0.309	-0.505,1.596	0.432	0.502	0.390	-0.552,1.415	0.225	0.544	0.679	-0.841,1.292
Inactive	-0.051	0.541	0.925	-1.111,1.009	0.541	0.471	0.251	-0.382,1.465	0.144	0.534	0.787	-0.902,1.190
Living with a partner Yes	-0.059	0.436	0.892	-0.914,0.796	-0.111	0.416	0.789	-0.927,0.704	0.129	0.459	0.778	-0.771,1.029
Children (<18 years) at home (Yes)	0.033	0.442	0.941	-0.833,0.899	-0.115	0.423	0.786	-0.943,0.713	-0.200	0.448	0.656	-1.078,0.679
Annual household income (ref <21.000€)												
21.000€ to <36.000€	-0.586	0.507	0.247	-1.579,0.407	-0.373	0.490	0.447	-1.334,0.588	-0.189	0.518	0.715	-1.204,0.826
>36.000€	-0.614	0.577	0.287	-1.746,0.517	0.075	0.524	0.886	-0.951,1.102	-0.231	0.602	0.702	-1.411,0.950
Missing	0.264	0.734	0.719	-1.175,1.704	0.179	0.722	0.805	-1.237,1.594	0.389	0.762	0.609	-1.104,1.883
Perception of cancer risk (ref : High or very high)												
Moderately high	0.798	0.680	0.241	-0.535,2.130	-0.330	0.561	0.556	-1.430,0.769	-0.351	0.646	0.587	-1.617,0.914
Low or very low	1.267	0.679	0.062	-0.065,2.598	0.786	0.520	0.131	-0.233,1.805	0.878	0.577	0.128	-0.252,2.008
Do not know	0.633	0.691	0.359	-0.721,1.987	0.293	0.524	0.576	-0.734,1.320	0.219	0.570	0.701	-0.898,1.336
Comprehension score	-0.051	0.111	0.647	-0.268,0.166	-0.085	0.100	0.395	-0.280,0.110	-0.022	0.106	0.833	-0.231,0.186
Constant	-4.247**	1.406	0.003	-7.002,-1.491	-3.313**	1.150	0.004	-5.567,-1.059	-3.499**	1.289	0.007	-6.025,-0.973
R-squared	519.000				504.000				407.000			
N. of cases	267.409				306.331				252.399			
aic	326.936				365.447				308.522			
bic	-119.704				-139.165				-112.199			

* p<0.05, ** p<0.01, *** p<0.001

Education and cancers variables have been removed because of collinearity

13 Appendice 5 Enquête en population générale version papier

ASK ALL

OE NUMERIC

QAge

Quel est votre âge ?

— ans

DumAge

SC - DUMMY

ALL

DUMMY-dAge TO RECORD AGE GROUP, PUNCH FROM QAge TO CATEGORIES BELOW

INSERT QUOTA HERE

1	18-39	QAge>=18 AND QAge<=39
2	40-59	QAge>=40 AND QAge<=59
3	60-74	QAge>=60 AND QAge<=74

ASK ALL

SC

INSERT STANDARD RML GENDER QUESTION (HIDE QUESTION NUMBERING)

QGenger

Etes-vous ?

1. Un homme
2. Une femme

ASK ALL

SC

Qpers.

Combien de personnes habitent ou vivent à votre adresse actuelle? Indiquez tous les adultes, y compris vous-même et tous les enfants vivant ou habitant à cette adresse, et ce, depuis au moins deux mois.

1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 9
10. 10
11. 11
12. 12+

QCSP. Quelle est votre situation professionnelle actuelle ?

Une seule réponse possible

Si vous êtes à la recherche d'un emploi et que vous avez déjà travaillé, sélectionnez la dernière profession que vous avez exercée.

Agriculteur exploitant ou pêcheur à son compte	1
Artisan, commerçant, chef d'entreprise	2
Cadre, profession intellectuelle supérieure, enseignant de l'enseignement supérieur	3
Profession libérale	4
Professeur des écoles, professeur des collèges ou lycées d'enseignement technique, profession intermédiaire de la santé et du travail social, profession intermédiaire administrative de la fonction publique et des entreprises, technicien, contremaître, agent de maîtrise	5
Employé	6
Ouvrier	7
Retraité ou pré retraité	8
A la recherche d'un premier emploi	9
Sans activité professionnelle	10

DummyCSP

SC – DUMMY

ASK ALL

INSERT QUOTA HERE

PUNCH FROM QCSP

1	CSP +	QCSP=1,2,3,4,5
2	CSP -	QCSP=6,7
3	Inactifs	QCSP=8,9,10

ASK ALL

SC

QStatus

Etes-vous... ?

Une seule réponse possible

Appendice 5 Enquête en population générale version papier

1	Salarié à plein temps
2	Salarié à temps partiel
3	Travailleur à votre compte
4	Ne travaille pas actuellement mais en recherche d'emploi
5	Ne travaille pas actuellement et ne recherche pas d'emploi / en incapacité de travail
6	Homme/Femme au foyer
7	Retraité(e)
8	Etudiant/élève

ASK ALL

SC

SCREEN OUT IF QReg 22

QReg-Dans quelle (ancienne) région habitez-vous ?

1	Alsace
2	Aquitaine
3	Auvergne
4	Basse-Normandie
5	Bourgogne
6	Bretagne
7	Centre-Val de Loire
8	Champagne-Ardenne
9	Corse
10	Franche-Comté
11	Haute-Normandie
12	Île-de-France
13	Languedoc-Roussillon
14	Limousin
15	Lorraine
16	Midi-Pyrénées
17	Nord-Pas-de-Calais
18	Pays de la Loire
19	Picardie
20	Poitou-Charentes
21	Provence-Alpes-Côte d'Azur
22	Rhône-Alpes

ASK ALL SC

DUMMY dRegion RECORD REGION, PUNCH FROM QReg

INSERT QUOTA HERE

2	Rhône-Alpes	QReg=22
---	-------------	---------

ASK ALL

OE NUM {MIN : 0 ; Max : 15}

Qchild Combien d'enfants de moins de 18 ans vivent dans votre foyer ? Si aucun enfant de moins de 18 ans ne vit dans votre foyer, saisissez 0.

ASK ALL SC

Qfam Quelle est votre situation de famille ?

Une seule réponse possible

1	Célibataire
2	En union libre
3	Marié(e)
4	Séparé(e)
5	Divorcé(e)
6	Veuf/ve
7	Pacsé(e) (Pacte civil de solidarité)

ASK ALL

SC

QEdu Choisissez votre niveau de scolarité le plus élevé.

Une seule réponse possible

1	École Élémentaire
2	Collège (BREVET)
3	CAP, BEP
4	Baccalauréat
5	Bac + 2 (BTS, DEUG, DUT)
6	Bac +3/+4 (Licence, Maîtrise, Master 1)
7	Bac +5 et plus (Grandes Écoles, DESS, DEA, Doctorat, Master 2)

ASK ALL

SC

QRev Quel est le revenu annuel net de votre foyer après déduction des impôts sur le revenu

?

[Veillez prendre en compte toutes vos sources de revenus : salaires, bourses d'étude, prestations de retraite et de sécurité sociale, dividendes sur les actions, revenus immobiliers, pensions alimentaires, etc. Nous ne souhaitons pas connaître le type de sources de revenus concerné, mais uniquement le montant total des revenus annuels des différents membres de votre foyer réunis.]

Une seule réponse possible

1	Entre 0 € et 6000 €
2	De 6001 € à 9000 €
3	De 9001 € à 12000 €
4	De 12001 € à 15000 €
5	De 15001 € à 18000 €
6	De 18001 € à 21000 €
7	De 21001 € à 24000 €
8	De 24001 € à 30000 €
9	De 30001 € à 36000 €
10	De 36001 € à 48000 €
11	De 48001 € à 60000 €
12	De 60001 € à 120000 €
13	120001 € et plus
14	Je préfère ne pas répondre

2 ECHANTILLONS 800+200

QUESTIONNAIRE PRINCIPAL

ASK ALL

SC

SCREEN OUT IF Q0=2

Q0

Madame, Monsieur,

Nous attirons votre attention sur le fait que l'enquête à laquelle vous participez concerne un sujet d'importance et sensible, la prise en charge du cancer. Nous vous demandons donc toute votre attention et vous en remercions par avance.

Acceptez-vous de participer à cette étude ? (Ces informations resteront confidentielles et strictement anonymes).

1. OUI
2. NON

PARTIE A : PRESENTATION DES LIEUX DE PRISE EN CHARGE

Questionnaire material

ASK ALL

SHOW IN ONE PAGE (DISPLAY ITALIC, BOLD AND SPACE LINE AS PER BELOW)

SHOW VISUAL

INTRO1

Dans le cadre du traitement du cancer, quand cela est possible, certains soins peuvent être réalisés aussi bien à l'hôpital qu'à domicile, ou par une structure médicale de proximité comme les maisons de santé.

***A l'hôpital** : cela peut être soit, pour une hospitalisation d'une journée en hôpital de jour, soit en hospitalisation complète avec une ou plusieurs nuits à l'hôpital.*

***A domicile** : une prise en charge peut être réalisée par un réseau de soins en oncologie ou par une structure d'hospitalisation à domicile.*

*Enfin, vous pouvez être pris(e) en charge, par **des maisons de santé proches de chez vous** : elles regroupent des médecins, des infirmières, des kinésithérapeutes...Elles sont en lien avec l'hôpital qui vous suit et peuvent prendre en charge la totalité ou seulement une partie de vos soins.*

Quel que soit votre lieu de prise en charge, les traitements qui vous sont administrés présentent une sécurité et une efficacité identiques.

Pour une bonne compréhension des différentes méthodes thérapeutiques possibles, quelques explications vous sont apportées :

Pour commencer quelques explications :

[Qu'est-ce que la chimiothérapie ?](#)

Une chimiothérapie est un traitement qui utilise des médicaments le plus souvent sous forme liquide.

Les médicaments de chimiothérapie sont alors administrés dans les veines par perfusion.

L'objectif d'une chimiothérapie est d'éliminer les cellules cancéreuses.

[Qu'est-ce qu'une administration par perfusion intraveineuse ?](#)

Une perfusion intraveineuse consiste à administrer des traitements médicamenteux par injection sur une période plus ou moins longue. Une poche contenant le traitement à administrer permet de le distribuer au goutte-à-goutte, de façon régulière.

Lors du traitement d'un cancer, la chimiothérapie mais aussi d'autres médicaments, peuvent être délivrés par perfusion comme un traitement antibiotique ou un traitement contre la douleur.

[Qu'est-ce que la nutrition entérale ou parentérale ?](#)

Lors du traitement d'un cancer, il se peut que l'alimentation par la bouche soit impossible ou insuffisante. Des techniques de nutrition artificielle peuvent alors être proposées au patient :

-L'alimentation par sonde gastrique, appelée également alimentation entérale, consiste à administrer un liquide nutritif en utilisant une sonde qui passe par le nez et qui descend jusqu'à l'estomac.

-La nutrition parentérale consiste à apporter directement les nutriments nécessaires au patient par voie intraveineuse.

ASK ALL

SC

DScenario

DScenario is a Dummy that records the Scenario

1	dScenario=HOPITAL
2	dScenario=DOMICILE
3	dScenario=MAISON DE SANTE

ASK ALL

SC

DScenarioOrder

DScenarioOrder is a dummy that records the order that the scenario is shown,

PUNCH FROM DScenario

1	1,2,3
2	2,3,1
3	3,1,2
4	1,3,2
5	2,1,3
6	3,2,1

ASK ALL

DScenario=1

Voici la présentation du lieu de prise en charge qu'est **l'hôpital**.

L'HÔPITAL

Il s'agit d'un hôpital avec un service de cancérologie et des médecins spécialisés.

Le passage par l'hôpital est indispensable : pour une opération chirurgicale, certains examens ou traitements lourds, ou encore consulter son cancérologue.

- *Une équipe composée de spécialistes de la douleur, de la nutrition, des psychologues et des assistantes sociales peut intervenir en fonction de vos besoins.*
- *A l'hôpital, la prise en charge est intégrale et vous décharge de toutes les tâches quotidiennes (préparation des repas, tâches ménagères, etc.).*
- *Vous devez régler le forfait hospitalier (18€ par jour) s'il n'est pas remboursé par votre assurance complémentaire (Mutuelle).*

L'hôpital peut cependant présenter certaines contraintes pour vous et vos proches : éloignement, horaires de visite, temps d'attente. Tout cela peut générer inconfort, stress et fatigue.

Selon votre sensibilité, l'hôpital peut être un milieu rassurant ou angoissant.

ASK ALL

DScenario=2

Voici la présentation du lieu de prise en charge qu'est le **domicile**.

LES SOINS A DOMICILE

Votre prise en charge est gérée soit par une structure dite d'hospitalisation à domicile (HAD), soit par réseau « ville-hôpital ». Ces structures peuvent être soit rattachées à l'hôpital, soit indépendantes. Leur rôle est de coordonner les professionnels de santé qui vont s'occuper de vous et de gérer le matériel dont vous pouvez avoir besoin lors de votre hospitalisation à domicile tel qu'un lit d'hospitalisation ou un porte perfusion par exemple.

- *Vos traitements et vos soins sont prescrits et réalisés par une équipe de médecins, d'infirmières libérales, de kinésithérapeutes, de nutritionnistes ou de diététiciens, de psychologues. Tous sont le plus souvent extérieurs à l'hôpital.*
- *Vous pouvez désigner votre médecin de famille ou votre infirmière libérale pour faire partie de cette équipe.*
- *Cette prise en charge est en lien avec l'hôpital qui vous suit et permet toujours une ré-hospitalisation si nécessaire.*

Pour votre sécurité, les médecins de l'hospitalisation à domicile (HAD) ou du réseau ville-hôpital assurent une permanence 24h/24 et 7j/7.

Comme à l'hôpital vous pouvez bénéficier de l'aide d'une assistante sociale.

Les traitements suivants peuvent être réalisés à domicile :

- *La chimiothérapie*
- *L'alimentation parentérale (par voie veineuse) ou entérale (par sonde)*
- *Les soins de suite de chirurgie (pansements etc.)*
- *L'antibiothérapie par perfusion*
- *Les traitements contre la douleur (pompe à morphine etc.)*

Les soins à domicile vous évitent des déplacements et vous permettent, ainsi qu'à vos proches de rester chez vous.

Comme à l'hôpital, l'intégralité des soins et du matériel nécessaire est prise en charge, vous n'avez donc rien à payer.

Cependant, si votre état de santé nécessite l'intervention d'une aide à domicile pour les tâches quotidiennes comme les lessives, le ménage ou le portage des repas, ces frais ne sont pas toujours pris en charge, cela dépend de votre revenu.

Une prise en charge à domicile peut pour vous et vos proches être une cause de fatigue ou d'anxiété.

Selon votre sensibilité, le domicile peut être un lieu rassurant ou angoissant.

ASK ALL

DScenario=3

Voici la présentation du lieu de prise en charge qu'est la **maison de santé**.

LA MAISON DE SANTE PROCHE DE CHEZ VOUS

Vous pouvez être pris(e) en charge dans une maison de santé. Ces maisons de santé regroupent dans un même lieu des médecins, des infirmières, des kinésithérapeutes, des psychologues, des diététiciens, des assistantes sociales.

Elles vous permettent de recevoir vos soins dans un lieu proche de chez vous, ce qui vous évite à vous et vos proches de trop grands déplacements.

De plus, vous ne dormez pas sur place, vous recevez vos soins et rentrez chez vous.

Dans une maison de santé, il se peut que vous soyez amené(e)s à faire l'avance des frais de consultation ou des dépenses de pharmacie par exemple. Cependant, ces frais vous sont intégralement remboursés.

Selon votre sensibilité, les maisons de santé peuvent être un lieu plutôt rassurant ou plutôt angoissant.

Nous vous rappelons que dans tous les cas, les traitements administrés présentent une sécurité et une efficacité identiques.

Appendice 5 Enquête en population générale version papier

q1A partir des informations qui vous ont été transmises, veuillez indiquer si les affirmations suivantes sont exactes ou non.

		Vrai	Faux
1	Les chimiothérapies administrées à l'hôpital sont plus sûres qu'à domicile	<input type="checkbox"/>	<input type="checkbox"/>
2	Les soins à domicile peuvent être coordonnés par un réseau ou une structure d'hospitalisation à domicile	<input type="checkbox"/>	<input type="checkbox"/>
3	Dans le cas d'une hospitalisation à domicile, vous devrez payer vos soins	<input type="checkbox"/>	<input type="checkbox"/>
4	Vous pouvez refuser d'être soigné(e) à domicile ou dans une maison de santé	<input type="checkbox"/>	<input type="checkbox"/>
5	Lorsque vous êtes pris(e) en charge à domicile ou dans une maison de santé vous ne pouvez pas bénéficier, par exemples, de conseils d'un nutritionniste ou d'un psychologue	<input type="checkbox"/>	<input type="checkbox"/>
6	A domicile, les incidents sont plus fréquents qu'à l'hôpital	<input type="checkbox"/>	<input type="checkbox"/>
7	Dans une maison de santé, les soins sont moins sûrs qu'à l'hôpital	<input type="checkbox"/>	<input type="checkbox"/>
8	Vous pouvez bénéficier de séances de kinésithérapie à domicile	<input type="checkbox"/>	<input type="checkbox"/>
9	Dans une maison de santé, vous pouvez être amené(e) à avancer une partie des frais	<input type="checkbox"/>	<input type="checkbox"/>
10	Une maison de santé est un établissement qui regroupe plusieurs professionnels de santé comme : des médecins, des infirmières et des kinésithérapeutes...	<input type="checkbox"/>	<input type="checkbox"/>
11	Lorsque vous êtes pris(e) en charge à domicile une permanence 24h24 et 7j/7 est assurée	<input type="checkbox"/>	<input type="checkbox"/>

PARTIE B : VOTRE EXPERIENCE DES SOINS

ASK ALL

SC

q2 Avez-vous déjà été hospitalisée au cours de votre vie (hors maternité) ? Par hospitalisation, nous entendons un séjour ayant nécessité de passer au moins 1 nuit à l'hôpital.

1-OUI

2-NON

ASK IF Q2=1

OE NUM {Min :1 ; Max :99999}ICAL

q3 Combien de fois avez-vous été hospitalisé(e) au cours de votre vie ?

/--/ fois

ASK IF Q2=1

SC

q4 Avez-vous déjà eu une hospitalisation de 5 jours ou plus au cours de votre vie ?

1-OUI

2-NON

ask all

ASK ALL

SC

q5 Avez-vous déjà eu un cancer ?

1	Oui, j'ai déjà eu un cancer
2	Oui, je suis actuellement un traitement pour le cancer
3	Non
4	Je ne souhaite pas répondre

ASK IF Q5=1 OR 2

MC RANDOMISE

q6 Quel(s) cancer(s) avez-vous ou avez-vous eu ?

1	Poumon
2	Sein
3	Prostate
4	Côlon et du rectum
5	Thyroïde
6	Col de l'utérus, de l'endomètre et des ovaires
7	Lèvre-bouche-larynx-
8	Oreille-nez
9	Rein
10	Foie
11	Cerveau
12	Testicules
13	Pancréas
14	Os
15	Peau
16	Leucémies
17	Intestin grêle
18	Estomac
19	Plèvre
20	Œsophage
21	Vessie
98	Autres, précisez (_____) OE FIXED

ASK IF Q5=1 OR 2

GRID

MC PER ROW

RANDOMISE ROW

q7 Au cours du traitement de votre cancer, avez-vous reçu un ou plusieurs des traitements suivants ?

		A l'hôpital	A domicile	En maison de santé	Non concerné(e) par le traitement
1	Chimiothérapie	1	2	3	99 EXC
2	Antibiothérapie en perfusion intraveineuse	1	2	3	99 EXC
3	Alimentation par perfusion intraveineuse ou sonde (nutrition parentérale ou entérale)	1	2	3	99 EXC
4	Transfusion sanguine	1	2	3	99 EXC
5	Soins de suite de chirurgie (pansement, piqure d'anticoagulant...)	1	2	3	99 EXC
6	Traitement contre la douleur en perfusion	1	2	3	99 EXC

ASK IF Q5=1 OR 2

SC

q8 Avez-vous déjà eu d'autres expériences des soins à domicile en dehors de votre cancer ?

1-OUI

2-NON

ASK IF Q8=1

q9 Pour quelle(s) maladie(s) ?

1	Maladie cardiaque
2	Maladie respiratoire
3	Diabète
4	Parkinson
5	Alzheimer
6	Insuffisance rénale
7	Sclérose en plaques
8	Soins post-chirurgicaux
98	Autres : précisez (_____) OE FIXED
99	Aucune de ces maladies FIXED, EXCL

ASK IF Q8=1

q9B Pour quel(s) type(s) de soins ?

1	Kinésithérapie
2	Soins infirmiers
3	Assistance respiratoire
4	Traitement contre la douleur en perfusion (morphine...)
5	Antibiothérapie en intraveineuse
98	Autres : précisez (_____) OE FIXED
99	Aucun de ces soins FIXED, EXCL

ASK IF Q5=3 OR 4

SC

q10 Avez-vous déjà bénéficié de soins à domicile ?

1-OUI

2-NON

ASK IF Q10=1

q11 Pour quelle(s) maladie(s) ?

1	Maladie cardiaque
2	Maladie respiratoire
3	Diabète
4	Parkinson
5	Alzheimer
6	Insuffisance rénale
7	Sclérose en plaques
8	Soins post-chirurgicaux
98	Autres : précisez (_____) OE FIXED
99	Aucune de ces maladies FIXED, EXCL

ASK IF Q10=1

q11B Pour quel(s) types de soins ?

1	Kinésithérapie
2	Soins infirmiers
3	Assistance respiratoire
4	Traitement contre la douleur en perfusion (morphine...)
5	Antibiothérapie en intraveineuse
98	Autres : précisez (_____) OE FIXED
99	Aucun de ces soins FIXED, EXCL

ASK ALL

SC

q12 L'un ou l'une de vos proches (conjoint, parent, enfant, frère ou sœur, ami...) a-t-il/elle eu un cancer au cours de ces vingt dernières années?

1-Oui

2-Non

3-Je ne souhaite pas répondre

ASK IF Q12=1

98 EXCLUSIVE

q13 A-t-il ou a-t-elle reçu dans le cadre de son traitement contre le cancer des soins dans l'un des lieux suivants ?

1	A l'hôpital
2	A domicile
3	En maison de santé
98	Ne sait pas, EXC FIXED

ASK ALL

SC

q14 L'un ou l'une de vos proches a-t-il/elle déjà bénéficié de soins à domicile pour une autre raison ?

1-OUI

2-NON

ASK IF Q14=1

MC RANDOMISE

q15 Pour quelle(s) maladie(s) ?

1	Maladie cardiaque
2	Maladie respiratoire
3	Diabète
4	Parkinson
5	Alzheimer
6	Insuffisance rénale
7	Sclérose en plaques
8	Soins post-chirurgicaux
98	Autres : précisez (_____) OE FIXED
99	Aucune de ces maladies FIXED, EXCL

ASK IF Q14=1

MC RANDOMISE

q15B Pour quel(s) types de soins ?

1	Kinésithérapie
2	Soins infirmiers
3	Assistance respiratoire
4	Traitement contre la douleur en perfusion (morphine...)
5	Antibiothérapie en intraveineuse
98	Autres : précisez (_____) OE FIXED
99	Aucun de ces soins FIXED, EXCL

ASK ALL

SC

q16

Pensez-vous que le risque que vous développiez un cancer ces 10 prochaines années est :

1	Très élevé
2	Plutôt Elevé
3	Moyennement élevé
4	Faiblement élevé
5	Très faiblement élevé
6	Je ne souhaite pas répondre
99	Ne sais pas

PARTIE C : PREFERENCE POUR UN LIEU DE PRISE EN CHARGE

ASK ALL

INTROC

Maintenant nous souhaiterions connaitre votre préférence pour un lieu de prise en charge

ASK ALL

CARD SORT TOOL

SC PER ROW

RANDOMISE ROW

q17

Dans le cas de la prise en charge d'un cancer, pour chacun des traitements ci-dessous, veuillez cocher le lieu de prise en charge que vous préférez ?

		à l'hôpital	à domicile	en maison de santé
	Chimiothérapie	1	2	3
	Antibiothérapie en intraveineuse	1	2	3
	Alimentation par perfusion ou sonde (nutrition parentérale ou entérale)	1	2	3
	Transfusion sanguine	1	2	3
	Soins de suite de chirurgie (pansement, piqure d'anticoagulant...)	1	2	3
	Traitement contre la douleur en perfusion	1	2	3

ASK ALL

SC PER ROW

RANDOMISE ROW

RECORD RANDOM ORDER (TO SHOW ON DATASET)

q18

Dans le cas de la prise en charge de votre cancer, si vous deviez choisir un lieu unique de prise en charge pour tous vos soins, vous préféreriez ?

		En 1 ^{er}	En 2 ^{ème}	En 3 ^{ème}
1	A l'hôpital	1	2	3
2	A domicile	1	2	3
3	En maison de santé (à proximité de votre domicile)	1	2	3

ASK ALL

SLIDER (SCALE 0-10)

q19

Si vous deviez noter de 0 à 10 votre préférence pour votre PREMIER choix, à savoir **PIPE ITEM [Q18 COLUMN=1]**

0 signifiant que vous avez une préférence très faible, et 10 que vous avez une préférence très forte pour votre premier choix, quelle note donneriez-vous ? Les notes intermédiaires servent à nuancer votre préférence.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

j'ai une préférence très faible pour ce choix
pour ce choix

j'ai une préférence très forte

NUMERICAL ANSWER

ASK ALL

SLIDER (SCALE 0-10)

q20

Si vous deviez noter de 0 à 10 votre préférence pour votre DEUXIEME choix, à savoir **PIPE ITEM [Q18 COLUMN=2]**

, par rapport à votre PREMIER choix.

0 signifiant que vous avez une préférence très faible, et 10 que vous avez une préférence très forte pour votre deuxième choix, quelle note donneriez-vous ? Les notes intermédiaires servent à nuancer votre préférence.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

Appendice 5 Enquête en population générale version papier

j'ai une préférence très faible pour ce choix
pour ce choix

j'ai une préférence très forte

ASK ALL
SLIDER
(SCALE 0-10)
q21

Si vous deviez noter de 0 à 10 votre préférence pour votre TROISIEME choix, à savoir **PIPE ITEM [Q18 COLUMN=3]**, par rapport à votre PREMIER choix.

0 signifiant que vous avez une préférence très faible, et 10 que vous avez une préférence très forte pour votre troisième choix, quelle note donneriez-vous ? Les notes intermédiaires servent à nuancer votre préférence.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

j'ai une préférence très faible pour ce choix
pour ce choix

j'ai une préférence très forte

ASK Q5=3 OR 4

CARD SORT TOOL

Check that all answers are not from the same column

SC PER ROW

RANDOMISE

SHOW IN ONE SCREEN (MINIMISE SCROLLING DOWN)

q22 Si vous développiez un cancer, indiquez pour chacune des affirmations suivantes si vous êtes d'accord ou non.

		Tout à fait d'accord	Plutôt d'accord	Plutôt pas d'accord	Pas du tout d'accord
1	Vous souhaiteriez limiter vos déplacements	4	3	2	1
2	Vous souhaiteriez limiter vos temps d'attente	4	3	2	1
3	Vous souhaiteriez rester près de votre famille	4	3	2	1
4	Vous souhaiteriez changer le moins possible vos habitudes et votre façon de vivre	4	3	2	1
5	Vous souhaiteriez séparer lieu de soins et domicile	4	3	2	1
6	Vous auriez peur d'être une charge pour vos proches	4	3	2	1
7	Il vous serait difficile de côtoyer d'autres malades	4	3	2	1
8	Vous auriez peur de vous sentir seul (e) à votre domicile	4	3	2	1
9	Une prise en charge à l'extérieur vous permettrait de sortir de chez vous et voir du monde	4	3	2	1
10	Selon vous, les soignants à domicile seraient plus disponibles	4	3	2	1
11	En cas de frais supplémentaires liés à votre maladie pour votre maintien à domicile, vous n'auriez pas les moyens de les supporter financièrement (aménagement de votre domicile...)	4	3	2	1
12	Vous pensez qu'il vous serait difficile de vous occuper des tâches quotidiennes	4	3	2	1
13	Le milieu hospitalier vous angoisse	4	3	2	1
14	Vous pensez que les trajets vous seraient pénibles	4	3	2	1
15	Vous pensez que vos proches pourraient s'occuper de vous	4	3	2	1
16	Vous pensez que la sécurité est meilleure dans une maison de santé plutôt qu'à domicile	4	3	2	1
17	Vous avez eu une mauvaise expérience des soins à domicile	4	3	2	1
18	Vous avez eu une mauvaise expérience des soins à l'hôpital	4	3	2	1
19	Vous pensez que votre logement n'est pas adapté pour recevoir des soins	4	3	2	1

Appendice 5 Enquête en population générale version papier

ASK IF Q5=1 OR 2

SC PER ROW

RANDOMISE

SHOW IN ONE SCREEN (MINIMISE SCROLLING DOWN)

q22B

Par rapport à votre expérience personnelle du cancer, indiquez pour chacune des affirmations suivantes si vous êtes d'accord ou non.

		Tout à fait d'accord	Plutôt d'accord	Plutôt pas d'accord	Pas du tout d'accord
1	Vous souhaitez limiter vos déplacements	4	3	2	1
2	Vous souhaitez limiter vos temps d'attente	4	3	2	1
3	Vous souhaitez rester près de votre famille	4	3	2	1
4	Vous souhaitez changer le moins possible vos habitudes et votre façon de vivre	4	3	2	1
5	Vous souhaitez séparer lieu de soins et domicile	4	3	2	1
6	Vous avez peur d'être une charge pour vos proches	4	3	2	1
7	Il vous est difficile de côtoyer d'autres malades	4	3	2	1
8	Vous avez peur de vous sentir seul (e) à votre domicile	4	3	2	1
9	Une prise en charge à l'extérieur vous permet de sortir de chez vous et voir du monde	4	3	2	1
10	Selon vous, les soignants à domicile seraient plus disponibles	4	3	2	1
11	En cas de frais supplémentaires liés à votre maladie pour votre maintien à domicile, vous n'auriez pas les moyens de les supporter financièrement (aménagement de votre domicile...)	4	3	2	1
12	Vous pensez qu'il vous est difficile de vous occuper des tâches quotidiennes	4	3	2	1
13	Le milieu hospitalier vous angoisse	4	3	2	1
14	Vous pensez que les trajets vous sont pénibles	4	3	2	1
15	Vos proches s'occupent de vous	4	3	2	1
16	Vous pensez que la sécurité est meilleure dans une maison de santé plutôt qu'à domicile	4	3	2	1
17	Vous avez eu une mauvaise expérience des soins à domicile	4	3	2	1
18	Vous avez eu une mauvaise expérience des soins à l'hôpital	4	3	2	1
19	Vous pensez que votre logement n'est pas adapté pour recevoir des soins	4	3	2	1

ASK ALL

SC

Q60

Que pensez-vous de la sécurité dans ces différents lieux de prise en charge ?

		Très supérieur	supérieur	identique	Inferieur	Très inferieur
1	Vous pensez que le niveau de sécurité à l'hôpital par rapport au domicile est	4	3		2	1
2	Vous pensez que le niveau de sécurité à l'hôpital par rapport à la maison de santé est	4	3		2	1
3	Vous pensez que le niveau de sécurité du domicile par rapport à la maison de santé est	4	3		2	1

ASK ALL

SC

Q61

Quel est le lieu de prise en charge que vous jugez le plus sûr : classez ces trois lieux de prise en charge du plus sûr au moins sûr :

	En 1 ^{er}	En 2 ^{ème}	En 3 ^{ème}
l'hôpital	1	2	3
le domicile	1	2	3
la maison de santé (à proximité de votre domicile)	1	2	3

q20 Vous pensez que la sécurité est meilleure à l'hôpital qu'à domicile ?

1-OUI

2-NON

q21 Vous pensez que la maison de santé est moins sûres que l'hôpital ?

1-OUI

2-NON

PARTIE F : QUESTIONNAIRE QUALITE DE VIE

SA
ASK ALL
SC

q23 Comment est votre état de santé en général ?

1	Très bon
2	Bon
3	Assez bon
4	Mauvais
5	Très mauvais

ASK ALL
SC

q62

Etes-vous limitée, depuis au moins 6 mois à cause d'un problème de santé, dans les activités que les gens font habituellement ?

1	Oui, fortement limité(e)
2	Oui, limité(e) mais pas fortement
3	Non, pas limité(e) du tout

ASK ALL
SC

q63

Pouvez-vous noter, entre 0 et 10, votre état de santé aujourd'hui (0= en très mauvais état, 10=excellent santé)

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

Très mauvais état
santé

Excellente

ASK ALL
SC PER ROW
q64

Au cours des 2 dernières semaines, à quelle fréquence avez-vous été gêné(e) par les problèmes suivants ?

	Jamais	Plusieurs jours	Plus de la moitié des jours	Presque tous les jours
Avoir peu d'intérêt ou de plaisir à faire les choses				
Être triste, déprimé(e) ou désespéré(e)				

Avoir des difficultés à s'endormir ou à rester endormi(e), ou dormir trop				
Se sentir fatigué(e) ou manquer d'énergie				
Avoir peu d'appétit ou manger trop				
Avoir une mauvaise opinion de soi-même, ou avoir le sentiment d'être nul(le), ou d'avoir déçu sa famille ou s'être déçu(e) soi-même				
Avoir du mal à se concentrer, par exemple, pour lire le journal ou regarder la télévision				
Bouger ou parler si lentement que les autres auraient pu le remarquer. Ou au contraire, être si agité(e) que vous avez eu du mal à tenir en place par rapport à d'habitude				

ASK ALL
SHOW IN ONE PAGE
INTROG

Votre préférence pour différents scénarios de prise en charge du cancer

ASK ALL
SHOW IN ONE PAGE (DISPLAY ITALIC, BOLD AND SPACE LINE AS PER BELOW)

INTRO_SCEN

Nous allons maintenant vous présenter 3 scénarios différents de prise en charge du cancer. Entre chaque scénario, vous allez devoir répondre à des questions. Nous vous demandons donc toute votre attention, il s'agit d'une séquence importante pour cette étude.

Pour une bonne compréhension des différentes méthodes thérapeutiques possibles dans le cadre de la prise en charge du cancer, nous vous rappelons leur signification

ASK ALL
SHOW IN ONE PAGE (DISPLAY ITALIC, BOLD AND SPACE LINE AS PER BELOW)
INTRO_SCEN1

Voici le premier scénario.

*Si un jour vous avez un cancer, imaginez que dans le cadre de votre prise en charge, vous ayez besoin pendant six mois à un an, de recevoir **tous les mois une chimiothérapie par voie intraveineuse pendant une heure.***

*Votre prise en charge ne nécessiterait **aucun autre soin.***

Votre chimiothérapie serait réalisée dans les mêmes conditions de sécurité à l'hôpital, à domicile ou dans une maison de santé.

ASK ALL
SC PER ROW
RANDOMISE ROW
RECORD RANDOM ORDER (TO SHOW ON DATASET)

Q30

Dans ces conditions, quel serait le lieu de prise en charge que vous préféreriez ?

Veuillez glisser ces lieux de prise en charge par ordre de préférence de 1 à 3, du plus préféré au moins préféré ?

		En 1 ^{er}	En 2 ^{ème}	En 3 ^{ème}
1	A l'hôpital	1	2	3
2	A domicile	1	2	3
3	En maison de santé (à proximité de votre domicile)	1	2	3

ASK ALL

SLIDER (SCALE 0-10)

q31

Si vous deviez noter de 0 à 10 votre préférence pour votre PREMIER choix, à savoir **PIPE ITEM [Q30 COLUMN=1]**

0 signifiant que vous avez une préférence très faible, et 10 que vous avez une préférence très forte pour votre premier choix, quelle note donneriez-vous ? Les notes intermédiaires servent à nuancer votre préférence.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

j'ai une préférence très faible pour ce choix
pour ce choix

j'ai une préférence très forte

ASK ALL

SHOW IN ONE PAGE (DISPLAY ITALIC, BOLD AND SPACE LINE AS PER BELOW)

INTRO_SCEN2

Voici le deuxième scenario.

*Si un jour vous avez un cancer, imaginez que dans le cadre de votre prise en charge, vous ayez besoin sur une durée de six à douze mois, de recevoir une **chimiothérapie par voie intraveineuse toutes les trois semaines pendant 5 jours de suite**. Chaque séance de chimiothérapie **durerait entre 2 et 6 heures minimum**.*

Appendice 5 Enquête en population générale version papier

Votre chimiothérapie serait réalisée dans les mêmes conditions de sécurité à l'hôpital, à domicile ou dans une maison de santé.

ASK ALL
 SC PER ROW
 RANDOMISE ROW
 RECORD RANDOM ORDER (TO SHOW ON DATASET)

Q32

Dans ces conditions, quel serait le lieu de prise en charge que vous préféreriez ?

Veuillez faire glisser ces lieux de prise en charge par ordre de préférence de 1 à 3, du plus préféré au moins préféré ?

		En 1 ^{er}	En 2 ^{ème}	En 3 ^{ème}
1	A l'hôpital	1	2	3
2	A domicile	1	2	3
3	En maison de santé (à proximité de votre domicile)	1	2	3

ASK ALL
 SLIDER (SCALE 0-10)

q33

Si vous deviez noter de 0 à 10 votre préférence pour votre PREMIER choix, à savoir PIPE ITEM [Q32 COLUMN=1]

0 signifiant que vous avez une préférence très faible, et 10 que vous avez une préférence très forte pour votre premier choix, quelle note donneriez-vous ? Les notes intermédiaires servent à nuancer votre préférence.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

j'ai une préférence très faible pour ce choix

j'ai une préférence très forte

pour ce choix

ASK ALL
 SHOW IN ONE PAGE (DISPLAY ITALIC, BOLD AND SPACE LINE AS PER BELOW)
 INTRO_SCEN3

Voici le troisième scénario.

Si un jour vous avez un cancer, imaginez que dans le cadre de votre prise en charge, vous ayez besoin d'une chimiothérapie, mais également d'autres types de soins.

*Pendant un an, vous recevriez **toutes les trois semaines une chimiothérapie par voie intraveineuse pendant 5 jours de suite**. Chaque séance durerait **entre 2 et 6 heures**.*

*De plus, en fonction de l'évolution de votre état de santé, vous pourriez nécessiter au cours de l'année un ou plusieurs des traitements supplémentaires suivants : une ou plusieurs « cures » **d'antibiotiques d'environ une semaine par voie intraveineuse** ET/OU quelques semaines **d'alimentation par sonde pour soutenir votre état nutritionnel** ; ET/OU **une ou plusieurs transfusions sanguines**.*

Tous les traitements seraient réalisés dans les mêmes conditions de sécurité à l'hôpital, à domicile ou dans une maison de santé.

ASK ALL

SC PER ROW

RANDOMISE ROW

RECORD RANDOM ORDER (TO SHOW ON DATASET)

Q34 Dans ces conditions, quel serait le lieu de prise en charge que vous préféreriez ?

Veillez glisser ces lieux de prise en charge par ordre de préférence de 1 à 3, du plus préféré au moins préféré ?

		En 1 ^{er}	En 2 ^{ème}	En 3 ^{ème}
1	A l'hôpital	1	2	3
2	A domicile	1	2	3
3	En maison de santé (à proximité de votre domicile)	1	2	3

ASK ALL

SLIDER (SCALE 0-10)

q35 Si vous deviez noter de 0 à 10 votre préférence pour votre PREMIER choix, à savoir PIPE

ITEM [Q34 COLUMN=1]

0 signifiant que vous avez une préférence très faible, et 10 que vous avez une préférence très forte pour votre premier choix, quelle note donneriez-vous ? Les notes intermédiaires servent à nuancer votre préférence.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

j'ai une préférence très faible pour ce choix
pour ce choix

j'ai une préférence très forte

PARTIE H : PREFERENCE DISPOSITION A PAYER

ASK ALL

SC

DUMMY VERSION 1

DVersion SC1 records the version shown for Scenario 1. PUNCH FROM Q30

QUOTA BELOW IS FILLED ON SOFT. NO QUOTAFULL ALLOWED HERE

1	Q30 ROW =1 and Q30 COLUMN≠1 (no hospital)
2	Q30 ROW =1 and Q30 COLUMN=1 (HOSPITAL)

ASK ALL

SC

DUMMY VERSION 2

DVersionSC2 records the version shown for Scenario 2. PUNCH FROM Q32

QUOTA BELOW IS FILLED ON SOFT. NO QUOTAFULL ALLOWED HERE

1	Q32 ROW =1 and Q32 COLUMN≠1 (no hospital)
2	Q32 ROW =1 and Q32 COLUMN=1 (hospital)

ASK ALL

SC

DUMMY VERSION 3

DVersionSC3 records the version shown for Scenario 3. PUNCH FROM Q34

QUOTA BELOW IS FILLED ON SOFT. NO QUOTAFULL ALLOWED HERE

1	Q34 ROW =1 and Q34 COLUMN≠1 (no hospital)
2	Q34 ROW =1 and Q34 COLUMN=1 (HOSPITAL)

ASK ALL

SC

Questionnaire Version

DUMMY TYPE

DType records the questionnaire type

FILL WITH LEAST FULL RANDOMLY

1	(Questions with Bis)	N=800
2	(Questions with no Bis)	N=200

ASK DVersionSC1=1 OR DVersionSC2=1 OR DVersionSC3=1

INTRO_H

La prise en charge standard du cancer est une prise en charge à l'hôpital.

*Par conséquent, pour que **vous et les membres de votre foyer** puissiez bénéficier d'une prise en charge à domicile ou en maison de santé, en cas de besoin, **il vous faudrait payer dès aujourd'hui et ce tous les***

*mois une taxe supplémentaire qui permettrait au système de santé de **développer les structures nécessaires** à cette prise en charge.*

Pour chacun des scénarios que nous vous avons présentés, indiquez combien seriez-vous prêt à payer au maximum par mois pour l'ensemble de votre foyer, afin de pouvoir bénéficier de cette prise en charge.

Si vous ne souhaitez pas payer pour une prise en charge à domicile ou en maison de santé, la prise en charge de votre cancer sera faite à l'hôpital.

Merci de prendre en considération le revenu de votre foyer afin d'être certain(e) que le montant que vous allez nous indiquer est réaliste et soutenable financièrement pour vous. Ayez en tête que, l'argent que vous allez dépenser pour cette prise en charge ne sera plus disponible pour d'autres biens ou d'autres services.

IMPORTANT : PLUSIEURS QUESTIONS PEUVENT VOUS ÊTRE POSÉES PAR SCENENARIO. AYEZ EN TETE QUE L'ENSEMBLE DES MONTANTS QUE VOUS ALLEZ DONNER SE CUMULENT ENTRE EUX : C'est comme si vous preniez différentes options d'assurance. Vous ne savez pas à l'avance quel type de cancer et donc de soins vous aurez besoin. Vous pouvez donc souscrire à plusieurs options. Chacune de ces options vous ouvrira des droits spécifiques qui correspondent au remboursement de l'intégralité des soins nécessaires dans chacun des scénarios, dans le lieu que vous préférez.

INTRO_Q36

POUR LE SCENARIO 1, VOUS NOUS AVEZ INDIQUE QUE VOUS PREFERERIEZ PIPE ITEM [Q30 COLUMN=1]

Nous vous rappelons que dans ce scénario, votre prise en charge consisterait essentiellement en des chimiothérapies courtes (<1 heure) tous les mois durant pendant 6 à 12 mois.

ASK DVersionSC1= 1 AND DType=2

SC
Q36

Dans le cas où vous seriez atteint(e) d'un cancer, combien seriez-vous-prêt(e) à payer au maximum par mois pour que l'ensemble des membres de votre foyer puissent bénéficier de cette prise en charge PIPE ITEM [Q30 COLUMN=1]?

Montant maximal	
1	0€

Appendice 5 Enquête en population générale version papier

2	1€/mois/foyer (soit 12€/an)
3	2€/mois/foyer (soit 24€/an)
4	3€/mois/foyer (soit 36€/an)
5	5€/mois/foyer (soit 60€/an)
6	8€/mois/foyer (soit 96€/an)
7	10€/mois/foyer (soit 120€/an)
8	15€/mois/foyer (soit 180€/an)
9	20€/mois/foyer (soit 240€/an)
10	25€/mois/foyer (soit 300€/an)
11	Autre montant <u>supérieur</u> , Précisez.....OE NUM

ASK DVersionSC1= 1 AND DType=2

SLIDER (SCALE 0-10)

q37

Etes-vous certain(e) de votre réponse ?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

Très incertain(e)

Très certain(e)

ASK DVersionSC1= 1 AND DType=1

SC PER ROW

Q36b

Dans le cas où vous seriez atteint(e) d'un cancer, seriez-vous-prêt(e) à payer tous les mois les montants suivants pour que l'ensemble des membres de votre foyer puissent bénéficier de cette prise en charge à

PIPE ITEM [Q30 COLUMN=1]?

		Définitiveme nt oui	Probablem ent oui	Incertain	Probableme nt non	Définitiveme nt non
1	0€ (je souhaite que cela soit gratuit)	1	2	5	3	4
2	1€/mois/foyer (soit 12€/an)	1	2	5	3	4
3	2€/mois/foyer (soit 24€/an)	1	2	5	3	4

Appendice 5 Enquête en population générale version papier

4	3€/mois/foyer (soit 36€/an)	1	2	5	3	4
5	5€/mois/foyer (soit 60€/an)	1	2	5	3	4
6	8€/mois/foyer (soit 96€/an)	1	2	5	3	4
7	10€/mois/foyer (soit 120€/an)	1	2	5	3	4
8	15€/mois/foyer (soit 180€/an)	1	2	5	3	4
9	20€/mois/foyer (soit 240€/an)	1	2	5	3	4
10	25€/mois/foyer (soit 300€/an)	1	2	5	3	4
11	Autre montant supérieur, Précisez..... OE NUM	1	2	5	3	4

ASK IF Q36 = 1 OR Q36B=1 (row 1 and Column = 1 OR 2)

SC

RANDOMISE

Q38

Pour quelle raison avez-vous répondu 0€ à la question précédente ?

- 1 Je n'ai pas les moyens financiers de payer pour cette prise en charge, même si je souhaiterais en bénéficier
- 2 Les soins à l'hôpital étant pris en charge quasi intégralement, je préfère être pris en charge à l'hôpital
- 3 Je n'ai pas bien compris la question
- 4 Il n'y avait pas assez d'information pour que je puisse choisir
- 5 Je refuse de payer pour des soins
- 98 Autre **FIXED**

ASK DVersionSC2 = 1

INTRO_Q40

POUR LE SCENARIO 2, VOUS NOUS AVEZ INDIQUE QUE VOUS PREFERERIEZ **PIPE ITEM [Q32 COLUMN=1]**

Nous vous rappelons que dans ce scénario, votre prise en charge consisterait essentiellement en des chimiothérapies de durée moyenne ou longue (entre 2 et 6 heures) cinq jours de suite durant pendant 6 à 12 mois.

ASK DVersionSC2 = 1 AND DType=2

SC PER ROW

Q40

Appendice 5 Enquête en population générale version papier

Dans le cas où vous seriez atteint(e) d'un cancer, combien seriez-vous-prêt(e) à payer au maximum par mois pour que l'ensemble des membres de votre foyer puissent bénéficier de cette prise en charge en charge PIPE ITEM [Q32 COLUMN=1]?

Montant maximal	
1	0€
2	1€/mois/foyer (soit 12€/an)
3	2€/mois/foyer (soit 24€/an)
4	3€/mois/foyer (soit 36€/an)
5	5€/mois/foyer (soit 60€/an)
6	8€/mois/foyer (soit 96€/an)
7	10€/mois/foyer (soit 120€/an)
8	15€/mois/foyer (soit 180€/an)
9	20€/mois/foyer (soit 240€/an)
10	25€/mois/foyer (soit 300€/an)
11	Autre montant <u>supérieur</u> , Précisez.....OE NUM

ASK DVersionSC2 = 1 AND DType=2
 SLIDER (SCALE 0-10)

q41

Etes-vous certain(e) de votre réponse ?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

Très incertain(e)

Très certain(e)

ASK DVersionSC2 = 2 1 AND DType=1
 SC PER ROW

Q40B

Dans le cas où vous seriez atteint(e) d'un cancer, seriez-vous-prêt à payer tous les mois les montants suivants pour que l'ensemble des membres de votre foyer puissent bénéficier de cette prise en charge à PIPE ITEM [Q32 COLUMN=1]?

Appendice 5 Enquête en population générale version papier

		Définitive- ment oui	Probable- ment oui	Incertain	Probable- ment non	Définitive- ment non
1	0€ (je souhaite que cela soit gratuit)	1	2	5	3	4
2	1€/mois/foyer (soit 12€/an)	1	2	5	3	4
3	2€/mois/foyer (soit 24€/an)	1	2	5	3	4
4	3€/mois/foyer (soit 36€/an)	1	2	5	3	4
5	5€/mois/foyer (soit 60€/an)	1	2	5	3	4
6	8€/mois/foyer (soit 96€/an)	1	2	5	3	4
7	10€/mois/foyer (soit 120€/an)	1	2	5	3	4
8	15€/mois/foyer (soit 180€/an)	1	2	5	3	4
9	20€/mois/foyer (soit 240€/an)	1	2	5	3	4
10	25€/mois/foyer (soit 300€/an)	1	2	5	3	4
11	Autre montant supérieur, Précisez..... OE NUM	1	2	5	3	4

ASK IF Q40=1 OR Q40B=1 (row 1 and Column = 1 OR 2)

SC

RANDOMISE

Q42

Pour quelle raison avez-vous répondu 0€ à la question précédente ?

- 1 Je n'ai pas les moyens financiers de payer pour cette prise en charge, même si je souhaiterais en bénéficier
- 2 Les soins à l'hôpital étant pris en charge quasi intégralement, je préfère être pris en charge à l'hôpital
- 3 Je n'ai pas bien compris la question
- 4 Il n'y avait pas assez d'information pour que je puisse choisir
- 5 Je refuse de payer pour des soins
- 98 Autre **FIXED**

ASK DVersionSC3 = 1

INTRO_Q44

POUR LE SCENARIO 3, VOUS NOUS AVEZ INDIQUE QUE VOUS PREFERERIEZ PIPE ITEM [Q34 COLUMN=1]

Nous vous rappelons que dans ce scénario, votre prise en charge consisterait en différents traitements plus ou moins fréquents en fonction de vos besoins comme :

- Une chimiothérapie courte ou longue
- Un traitement contre la douleur en perfusion
- Une antibiothérapie en intraveineuse
- Une alimentation par sonde
- Une transfusion sanguine

SC ASK DVersionSC3 = 1 AND DType=2

Q44

Dans le cas où vous seriez atteint(e) d'un cancer, combien seriez-vous-prêt(e) à payer au maximum par mois pour que l'ensemble des membres de votre foyer puissent bénéficier de cette prise en charge PIPE ITEM [Q34 COLUMN=1]?

Montant maximal	
1	0€
2	1€/mois/foyer (soit 12€/an)
3	2€/mois/foyer (soit 24€/an)
4	3€/mois/foyer (soit 36€/an)
5	5€/mois/foyer (soit 60€/an)
6	8€/mois/foyer (soit 96€/an)
7	10€/mois/foyer (soit 120€/an)
8	15€/mois/foyer (soit 180€/an)
9	20€/mois/foyer (soit 240€/an)
10	25€/mois/foyer (soit 300€/an)
11	Autre montant <u>supérieur</u> , Précisez.....OE NUM

ASK DVersionSC3 = 1 AND DType=2

SLIDER (SCALE 0-10)

q45

Etes-vous certain(e) de votre réponse ?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

Appendice 5 Enquête en population générale version papier

Très incertain(e)

Très certain(e)

ASK DVersionSC3 = 1 2 AND DType=1

SC PER ROW

Q44B

Dans le cas où vous seriez atteint(e) d'un cancer, seriez-vous-prêt(e) à payer tous les mois les montants suivants pour que l'ensemble des membres de votre foyer puissent bénéficier de cette prise en charge à

PIPE ITEM [Q34 COLUMN=1]?

		Définitiveme nt oui	Probablem ent oui	Incertain	Probableme nt non	Définitiveme nt non
1	0€ (je souhaite que cela soit gratuit)	1	2	5	3	4
2	1€/mois/foyer (soit 12€/an)	1	2	5	3	4
3	2€/mois/foyer (soit 24€/an)	1	2	5	3	4
4	3€/mois/foyer (soit 36€/an)	1	2	5	3	4
5	5€/mois/foyer (soit 60€/an)	1	2	5	3	4
6	8€/mois/foyer (soit 96€/an)	1	2	5	3	4
7	10€/mois/foyer (soit 120€/an)	1	2	5	3	4
8	15€/mois/foyer (soit 180€/an)	1	2	5	3	4
9	20€/mois/foyer (soit 240€/an)	1	2	5	3	4
10	25€/mois/foyer (soit 300€/an)	1	2	5	3	4
11	Autre montant supérieur, Précisez..... OE NUM	1	2	5	3	4

ASK IF Q44=1 OR Q44B=1 (row 1 and Column = 1 OR 2)

SC

RANDOMISE

Q46

Pour quelle raison avez-vous répondu 0€ à la question précédente ?

- 1 Je n'ai pas les moyens financiers de payer pour cette prise en charge, même si je souhaiterais en bénéficier
- 2 Les soins à l'hôpital étant pris en charge quasi intégralement, je préfère être pris en charge à l'hôpital
- 3 Je n'ai pas bien compris la question
- 4 Il n'y avait pas assez d'information pour que je puisse choisir
- 5 Je refuse de payer pour des soins
- 98 Autre **FIXED**

ASK ALL

Quelle que soit votre préférence individuelle, nous souhaiterions maintenant savoir si vous seriez prêt(e) à participer au développement des soins à domicile ou en maison de santé pour l'ensemble de la **population française**.

La prise en charge standard du cancer est une prise en charge à l'hôpital.

Par conséquent, pour que les personnes atteintes de cancer puissent bénéficier d'une prise en charge à domicile ou en maison de santé, il faudrait que chacun **à l'échelle de la population française** paie une taxe supplémentaire qui permettrait au système de santé de développer les structures nécessaires à cette prise en charge.

RANDOMIZE [Q48, Q49, Q50], [Q48B], [Q52, Q53, Q54], [Q52B]

ASK DType=2

SC

Q48

Combien seriez-vous prêt à payer au maximum par mois pour que les personnes en dehors des personnes de votre foyer puissent bénéficier de soins à domicile pour le traitement de leur cancer ?

Merci de prendre en considération le revenu de votre foyer afin d'être certain que le montant que vous allez nous indiquer est réaliste et soutenable financièrement pour vous. L'argent que vous allez dépenser pour cette prise en charge ne sera plus disponible pour d'autres biens ou d'autres services.

Montant maximal	
1	0€
2	1€/mois/foyer (soit 12€/an)
3	2€/mois/foyer (soit 24€/an)
4	3€/mois/foyer (soit 36€/an)
5	5€/mois/foyer (soit 60€/an)
6	8€/mois/foyer (soit 96€/an)
7	10€/mois/foyer (soit 120€/an)
8	15€/mois/foyer (soit 180€/an)
9	20€/mois/foyer (soit 240€/an)

Appendice 5 Enquête en population générale version papier

10	25€/mois/foyer (soit 300€/an)
11	Autre montant <u>supérieur</u> , Précisez.....OE NUM

ASK DType=2
SLIDER (SCALE 0-10)

q49 Etes-vous certain(e) de votre réponse ?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

Très incertain(e)

Très certain(e)

ASK DType=1
SC PER ROW
Q48B

Quelle que soit votre préférence personnelle, seriez-vous prêt(e) à payer tous les mois les montants suivants pour que les personnes en dehors des personnes de votre foyer puissent bénéficier de soins à domicile pour le traitement de leur cancer ?

Merci de prendre en considération le revenu de votre foyer afin d'être certain que le montant que vous allez nous indiquer est réaliste et soutenable financièrement pour vous. L'argent que vous allez dépenser pour cette prise en charge ne sera plus disponible pour d'autres biens ou d'autres services.

		Définitiveme nt oui	Probablem ent oui	Incertain	Probableme nt non	Définitiveme nt non
1	0€ (je souhaite que cela soit gratuit)	1	2	5	3	4
2	1€/mois/foyer (soit 12€/an)	1	2	5	3	4
3	2€/mois/foyer (soit 24€/an)	1	2	5	3	4
4	3€/mois/foyer (soit 36€/an)	1	2	5	3	4
5	5€/mois/foyer (soit 60€/an)	1	2	5	3	4
6	8€/mois/foyer (soit 96€/an)	1	2	5	3	4
7	10€/mois/foyer (soit 120€/an)	1	2	5	3	4
8	15€/mois/foyer (soit 180€/an)	1	2	5	3	4
9	20€/mois/foyer (soit 240€/an)	1	2	5	3	4

Appendice 5 Enquête en population générale version papier

10	25€/mois/foyer (soit 300€/an)	1	2	5	3	4
11	Autre montant supérieur, Précisez..... OE NUM	1	2	5	3	4

ASK IF Q48=1 OR Q48B=1 (row 1 and Column = 1 OR 2)

SC

RANDOMISE

Q50 Pour quelle raison avez-vous répondu 0€ à la question précédente ?

- 1 Je n'ai pas les moyens financiers de payer
- 2 Je n'ai pas bien compris la question
- 3 Je refuse de payer pour les autres
- 98 Autre **FIXED**

ASK IF DType=2

SC

Q52

Quelle que soit votre préférence personnelle, combien seriez-vous prêt(e) à payer au maximum par mois pour que les personnes en dehors des personnes de votre foyer puissent bénéficier de soins en maison de santé pour le traitement de leur cancer ?

Merci de prendre en considération le revenu de votre foyer afin d'être certain que le montant que vous allez nous indiquer est réaliste et soutenable financièrement pour vous. L'argent que vous allez dépenser pour cette prise en charge ne sera plus disponible pour d'autres biens ou d'autres services.

Montant maximal	
1	0€
2	1€/mois/foyer (soit 12€/an)
3	2€/mois/foyer (soit 24€/an)
4	3€/mois/foyer (soit 36€/an)
5	5€/mois/foyer (soit 60€/an)
6	8€/mois/foyer (soit 96€/an)
7	10€/mois/foyer (soit 120€/an)
8	15€/mois/foyer (soit 180€/an)
9	20€/mois/foyer (soit 240€/an)
10	25€/mois/foyer (soit 300€/an)
11	Autre montant <u>supérieur</u> , Précisez..... OE NUM

ASK DType=2
SLIDER (SCALE 0-10)
q53

Etes-vous certain(e) de votre réponse ?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

0: _____ 10:

Très incertain(e)

Très certain(e)

ASK IF DType=1
SC PER ROW

Q52B

Quelle que soit votre préférence personnelle, seriez-vous prêt(e) à payer tous les mois les montants suivants pour que les personnes en dehors des personnes de votre foyer puissent bénéficier de soins en maison de santé pour le traitement de leur cancer ?

Merci de prendre en considération le revenu de votre foyer afin d'être certain que le montant que vous allez nous indiquer est réaliste et soutenable financièrement pour vous. L'argent que vous allez dépenser pour cette prise en charge ne sera plus disponible pour d'autres biens ou d'autres services.

		Définitiveme nt oui	Probablem ent oui	Incertain	Probablem ent non	Définitiveme nt non
1	0€ (je souhaite que cela soit gratuit)	1	2	5	3	4
2	1€/mois/foyer (soit 12€/an)	1	2	5	3	4
3	2€/mois/foyer (soit 24€/an)	1	2	5	3	4
4	3€/mois/foyer (soit 36€/an)	1	2	5	3	4
5	5€/mois/foyer (soit 60€/an)	1	2	5	3	4
6	8€/mois/foyer (soit 96€/an)	1	2	5	3	4
7	10€/mois/foyer (soit 120€/an)	1	2	5	3	4
8	15€/mois/foyer (soit 180€/an)	1	2	5	3	4
9	20€/mois/foyer (soit 240€/an)	1	2	5	3	4

Appendice 5 Enquête en population générale version papier

10	25€/mois/foyer (soit 300€/an)	1	2	5	3	4
11	Autre montant supérieur, Précisez..... OE NUM	1	2	5	3	4

ASK IF Q52= 1 OR Q52B=1 (row 1 and Column = 1 OR 2)

SC

RANDOMISE

Q54 Pour quelle raison avez-vous répondu 0€ à la question précédente ?

- 1 Je n'ai pas les moyens financiers de payer
- 2 Je n'ai pas bien compris la question
- 3 Je refuse de payer pour les autres
- 98 Autre FIXED

ASK ALL

SHOW ONE SCREEN

Pour terminer, voici quelques toutes dernières questions.

ASK ALL

SC

q56

A quelle distance habitez-vous de l'hôpital le plus proche ?

- 1-Moins de 5 kilomètres
- 2-Entre 5 et 15 kilomètres
- 3- Entre 15 et 30 kilomètres
- 4-Plus de 30 kilomètres

ASK ALL

SC

q57

Combien de temps mettez-vous pour vous rendre à l'hôpital le plus proche ?

- 1-Moins de 10 minutes
- 2-Entre 10 et 20 minutes
- 3- Entre 20 et 30 minutes
- 4- Entre 30 et 45 minutes
- 5- Plus de 45 minutes

ASK ALL

SC

Q65

Avez-vous une maison de santé près de chez-vous ?

1-Oui

2-Non

3- Ne sait pas

ASK IF Q65=1

OE NUM (Min : 1 ; Max : 9999)

Q66 À combien de kilomètres environs se situe cette maison de santé ?

OE Kms

Q57 BIS

Etes-vous bénéficiaire de la CMU (couverture Maladie Universelle) ?

1-OUI

2-NON

ASK ALL

SC

q58 Avez-vous une couverture complémentaire, c'est-à-dire une mutuelle, ou un contrat d'assurance complémentaire privé ou provenant d'une institution de prévoyance, qui rembourse des soins en plus de la Sécurité sociale ?

1-OUI

2-NON

ASK IF Q58=1

SC

q59 Combien payez-vous par mois et par personne pour cette mutuelle / complémentaire santé ?

1-Moins de 30€

2-Entre 30 et 50€

3-Entre 50 et 70€

4-Entre 70 et 100€

5-Plus de 100€

6- Vous ne savez pas

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