

Cost-Effectiveness Analysis

Of The Valion Health Cancer Support Program



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Term/Acronym	Term or meaning
ABS	Australian Bureau of Statistics
ACIM	Australian Cancer Incidence and Mortality
AIHW	Australian Institute of Health and Welfare
АНР	Allied Health Professional
AHS	Australian Health Survey
Cancer survivor	In Australia, 'cancer survivor' 'is generally used to refer to people who have completed initial cancer treatments (surgery, chemotherapy, radiation therapy), who are apparently free from cancer.
Comparator	The standard intervention against which an alternative intervention is compared in a study. The comparator can be no intervention (as is the case in this study).
CSP	Cancer Support Program
DALY	Disability-adjusted life year
HRQoL	Health Related Quality of Life (measures)
IHPA	Independent Hospital Pricing Authority
MDT	Multidisciplinary teams
QALY	Quality adjusted life-years
QoL	Quality of Life
RCT	Randomized controlled trial
SF-36	Short Form 36 Health Survey
SP	A Sampling Point refers to a specific time at which data is collected for the purposes of an evaluation.
Survival rates	The percentage of patients still living at a certain time interval following their diagnosis. In terms of cancer, a five-year survival rate is usually given



1. Executive Summary

1.1 Introduction

One in two Australians will be diagnosed with cancer during their lifetime and cancer is now the second most common cause of premature death. Over 144,000 new cancer diagnoses were predicted for Australia in 2019 and just under 50,000 Australian's died from the disease. An estimated 1.1 million people are living with a personal history of cancer in Australia. Despite this, progression in screening, early detection, and effective treatment of cancer has rapidly increased the percentage of cancer survivors in Australia. The 5-year survival rate for all cancers has reached 68%, and this is expected to rise in future years.

Many cancer patients will complete their primary treatment and return, more or less, to the same level of health and wellbeing that they enjoyed before their diagnosis. But a significant proportion; at least one in four of those living with cancer – around 250,000 people in Australia – face poor health or disability after cancer treatment. For many, the long-term effects of cancer and its treatment include both physical and mental effects, such as chronic fatigue, decreased muscle strength, reduced lean body mass, reduced cardiorespiratory fitness, mental health problems, pain, urinary and gastrointestinal problems, and lymphoedema ¹.

Given the growing number of people who are living with cancer and the long-term adverse health effects many experience, there needs to be been a shift from seeing it as a fatal illness to a chronic one, a focus on survivorship, and on the long-term needs of those living with and after cancer. Historically, the main foci of cancer care in Australia have understandably been on cancer treatment and surveillance, with less attention afforded to effective and efficient rehabilitation processes. Compared with rehabilitation in other settings such as diabetes or cardiovascular disease, cancer rehabilitation is relatively less established.



1.2 The Cancer Support Program

Valion Health has developed a 12-week multidisciplinary team led cancer program delivered using video consulting and other digital health tools called Cancer Support. The program includes care coordination and is delivered by leading Australian based Oncology nurses, Exercise Physiologists, Clinical Psychologists and Dietitians. It can be delivered to anyone with an internet connection and computer (or phone/tablet). This model allows for a more accessible, time-efficient, and personalised way for people with a history of cancer to access quality health care.

This program is focused on participants who are currently receiving an intensive cancer treatment such as chemotherapy or radiation therapy, those who have completed such treatment/s and those with incurable/ advanced cancer. The Cancer Support program includes a number of components, with the goal of reducing fatigue and improving fitness, mood, nutrition, sleep, and mobility. Participants are given tailored sessions with oncology exercise specialists, oncology dietitians, psychologists, and support from a nursing care coordinator to guide them through each step of the program and provide tailored education and support. Participants are also supplied with an exercise band kit as an aid to the homebased exercise program. The program is individualised to meet the needs of each participant.

1.3 The Present Study

Valion Health commissioned Navigate Consulting to undertake a cost-effectiveness analysis of their flagship Cancer Support Program among cancer survivors from a health insurer's perspective.

The study objectives were to firstly report the costs and outcomes experienced by participants in the CSP program in the first twelve months after program completion. Secondly, to perform a prospective economic evaluation of the CSP program relative to a no intervention/no therapy alternative, from the perspective of the funder, an Australian Private Health Insurer. This evaluation set out to determine if cancer survivors who completed the Valion Health Cancer Support Program (CSP) reported improved health outcomes, lower rates of health service utilisation and subsequently reduced health insurance claims, twelve months after completing the program, relative to Australian cancer survivors who did not receive post cancer rehabilitation, following the completion of their cancer treatment as usual (e.g. surgery, chemotherapy and/or radiotherapy).

1.4 Results

The results demonstrate for each member, absolute savings (after allowing for the CSP program cost of \$1,800) that would otherwise be paid in hospital and/or general treatment benefits totaled \$2,220 per member in the first year following their completion of the Cancer Support Program. Moreover, the positive health effects and cost savings continue through years two and three following the one-off participation in the cancer support program. In year two any one of the major Australian health funds could expect to avoid \$3,025 in benefit payments that would otherwise be paid and in year three our modelling indicates savings of \$2,518.

1.5 Conclusions

Based on two analyses conducted using data generated from this study, it is suggested that the Valion Health Cancer Support Program is a cost-effective means by which Australian private health insurers can reduce the financial costs in benefits paid to cancer survivors – specifically in terms of fewer future admissions, reduced length of stay and fewer allied health professional consultations over the immediate and longterm. These represent absolute savings for the insurer per-member (after allowing for program costs).

Table 1: Total Costs to Health Fund – Per Person. Cancer Support Program Participants versus NoIntervention

Costs	Year 1	Year 2	Year 3
CSP Participants (Inc \$1800 cost of program)	\$3,768	\$1,463	\$1,240
Cancer Survivors No Intervention	\$5,898	\$4,448	\$3,757
Difference	\$2,200	\$3,025	\$2,518

The evaluation results, suggest that for health fund members who've experienced cancer, a once-off expenditure of \$1,800 could generate absolute savings or avoided-costs for the insurer (after allowing for the CSP cost) per member of \$2,200 in the first year after program completion, \$3,025 in the second year and \$2,518 in year three. Representing a Return on Investment (ROI) of 1.22 in year 1, 1.68 in year 2 and approximately 1.39 in the third year after the fund member has completed the program.



2. Introduction

2.1 Long-term consequences of cancer and its treatment

At least 250,000 people in Australia are facing poor health or disability after treatment for cancer – approximately one in four (25%) of those who have been diagnosed with cancer at some point in their lives².

For example, approximately 70% of cancer patients report fatigue complaints during chemotherapy or radiotherapy, and even years after the end of therapy, fatigue is still a significant problem for at least 30% of cancer survivors³.

Additionally, less than 20% of cancer survivors meet the dietary recommendations, and less than 50% meet the physical activity recommendations⁴, demonstrating a clear role for interventions to support healthy eating behaviours and increased physical activity. In the year following diagnosis, around two in ten Australian patients will experience symptoms of anxiety and depression severe enough to warrant intervention by specialist psychological/psychiatric services⁵, and eight per-cent will voluntarily admit themselves to stay in inpatient hospital psychiatric services.

Moreover, cancer survivors often suffer not one, but multiple adverse health effects from their cancer and its' treatment.

A recent population-level cross sectional study of the QoL, symptoms and unmet information needs of Australian cancer survivors showed substantial proportions of people experience problems with mobility, pain or discomfort, anxiety or depression and daily activity limitations, one, three and five years following diagnosis⁶.



2.2 Counting the cost of care beyond treatment

There has been a significant amount of research into the use and costs of health care by people with specific cancers, as well as into the wider economic and social costs arising from loss of earnings and premature mortality. For example, research by the UK's Nuffield Trust ⁷ found twenty-four months after diagnosis, people with cancer had 60 per cent more accident and emergency (A&E) attendances, 97 per cent more emergency admissions, four times as many outpatient attendances and nearly six times more elective admissions than expected. A similar pattern was seen for GP and Allied Health Professional (AHP) visits, with cancer survivors having 50 per cent more contact with their GPs and 67 per cent more contact with an AHP than expected 24 months after diagnosis.

In 2013 the societal cost of cancers among people in Australia diagnosed during 2019±2013 was ~\$9.3billion (0.4% of Gross Domestic Product; \$272 per capita), with the largest costs for colorectal cancer (\$1.3 billion), breast cancer (\$0.8billion), lung cancer (\$0.6billion) and prostate cancer (\$0.5billion).

Another report for New South Wales (NSW; 32% of Australia's population) estimated \$3.1 billion for lifetime health system costs for people diagnosed with cancer in 2007. These costs only captured direct treatment for cancer and have not been updated since.

The financial costs of cancer are enormous, both for the patients themselves and for the health system, but these costs extend far beyond the initial diagnosis and cancer treatment. It is estimated that more than 50% of cancer survivors suffer late effects, that require ongoing healthcare.

The long-term consequences of cancer place a significant burden not only on Australia's health systems, but also on the cancer survivor, for whom out-of-pocket (OOP) costs associated with cancer diagnosis, treatment and survival can run into the tens of thousands of dollars.. For example, the average lifetime cost for a man with prostate cancer is \$36,800, and for an individual with lung cancer, \$74,600, as shown in table 1 below. Table 2: Average lifetime costs by cancer for individuals aged 15 years and older

Cancer type	Average lifetime cost
Prostate cancer	\$36,800
Breast cancer	\$36,400
Bowel cancer	\$51,460
Melanoma	\$20,360
Lung cancer	\$74,600
Non-Hodgkin lymphoma	\$87,500
Head, neck & thyroid cancer	\$95,460
Kidney cancer	\$63,220
Uterine cancer	\$46,030

Clearly, cancer survivors are high users of health services, whether they be through the public system or through their private health insurance benefits.

2.3 The State of Cancer Rehabilitation in Australia

The dominant model of post-treatment cancer care is specialist-led and focused on detection of cancer recurrence, however there is increasing attention towards cancer rehabilitation to maximise the health and wellbeing of people affected by cancer.

Peak national cancer bodies are calling for person-centred care that is responsive to the holistic needs and issues experienced by people with cancer and recognising the need for health care systems and services to adapt in order to effectively and efficiently meet this challenge. Despite the growing evidence base supporting a range of rehabilitation practices however, cancer rehabilitation is not part of usual care in Australia. Challenges include limited awareness of rehabilitation services among both patients and health care professionals and a lack of sustainable funding to support rehabilitation programs.

These challenges support the need for ongoing multidisciplinary approaches to cancer rehabilitation and for coordination of efforts nationally to progress cancer rehabilitation policy, practice and research



3. Method

To model the cost effectiveness of the Cancer Support Program from the health insurer perspective, a two arm cost effectiveness model was developed based on the work of Hillman et al (2018).

The objective was to design a clinically and economically appropriate model that could estimate the benefits that would typically be paid by the largest five private health insurance firms (Medibank, BUPA, HCF, NIB and HBF) to members who are cancer survivors, but receive no intervention, of the likes of the Cancer Support Program.

Then compare these costs and utilization rates to those of past Cancer Support Program participants who were surveyed directly – as explained below.



3.1 Sample and intervention description

The intervention was the 12-week Cancer Support Program. The number and type of health services episodes experienced by Cancer Support Program participants who had completed the program at least one year previously was the base measure from which health utilisation could be compared between intervention and comparator.

Study participants were recruited from the records of people who had completed the 12-week CSP at least 12 months previously. A telephone survey of their healthcare use and costs over the preceding twelve months.

To determine Cancer Support Program participants' health service use, a telephone survey was conducted. A modified version of the Medical Consumption Questionnaire (iMTA MCQ) a generic survey instrument for measuring medical costs was used. Twentyeight questions were asked of respondents about their use of a wide range of health services over the twelve months since program completion. The questionnaire used for this study can be found in Appendix A of this document.

A final sample of 106 respondents was achieved. The intervention cost of the Cancer Support Program was \$1800 in 2019.

3.2 Comparator - No Intervention

The comparator was the number of health services episodes across three twelvemonth periods, under standard care, where no intervention is provided (i.e. the Cancer Support Program). Health use data was calculated at three periods 0-12 months, 13-24 months and 25-36 months post-diagnosis. The health use data to populate the comparator was taken from a 2019 Australian academic study⁸ of all persons diagnosed with cancer in Queensland in 2017. The study uses a research model of cancer-related health service use based upon a whole of population linked dataset, CancerServMod of all persons diagnosed with cancer in Queensland, (01 July 2016 to 30 June 2017; n = 25,553)⁹.

3.3 Health Cost Categories

3.3.1 Baseline health service costs

Seven categories of health services were selected for cost-effectiveness modelling,

- Hospitalisation (non-acute);
- · Psychiatric hospital services (per-day);
- · Psychology (outpatient);
- Physiotherapy;
- · Remedial massage;
- · Dietary advice;
- Acupuncture;

Baseline health service costs were sourced from key Australian sources. For example, inpatient hospitalisation costs were sourced from the Independent Hospital Pricing Authority's and the Public and Private Sector National Hospital Cost Data Collection Reports. Psychiatric inpatient costs were sourced from SIRA. While the recommended charges for each of the six allied health services were sourced directly from their lead industry associations.

3.3.2 Determining the Benefits Paid for Each Health Service Type

These baseline costs for each service were then adjusted to actual benefits that would be paid for each service by the five largest private health insurers – BUPA, Medibank, NIB, HCF and HBF (by share of market) on their Top-Extras and Gold Top Hospital Cover policies¹⁰. Because of the differences between insurers benefit schedules, we took the mean of the five insurers benefits for each service category.



Top Extras and Hospital Gold policies were chosen because their benefit schedules correspond to the services provided in the Cancer Support Program. All costs used in the modelling and results are based on benefits paid under these policies and can be found in the table in the Appendix at the back of this paper.

3.3.3 Projecting Forward Costs – Years Two and Three

To project forward costs in years two and three; we reviewed the literature and it was apparent as cancer survivors slowly recovered, their use of health services became less frequent. A wide-ranging review of the literature confirmed this assumption and helped inform a year on year rate of decline in health service use by cancer survivors^{11 12}.

The rate at which health visits/consults decreased varied according to service type, but overall ranged between twenty-five and thirty per-cent fewer visits for each service category each forward year 13, The same decline rate was applied to both the Cancer Support Program and baseline population datasets.

Finally, health costs inflation was sourced Private Healthcare Australia's, Pre-Budget Submission 2019-2014 and was deemed to be 4.8% per annum in 2019.



4. Cost Comparisons – Total And By Health Service:

This section reports the findings of the economic modelling of the seven categories of health services that were investigated. The section begins with the accumulated costs of all health service categories – which represents the potential total per-person cost avoidance in health service use and subsequent benefits paid that a health insurer could achieve for each member offered the Valion Health Cancer Support Program.

4.1 All Costs Comparison

We begin with the comparison of the total or accumulated costs to the payor of health service utilisation among Cancer Support Program with that of the benchmark (nointervention) sample. Figure 1 shows the perperson accumulated health services cost to the health fund for both the Cancer Support Program sample and the comparator – the no intervention baseline population. The total costs are an aggregation of the number of visits/consults and corresponding costs of each of the eight service categories listed above.

As shown in 2019, accumulated health service costs among the Cancer Support Program participants were \$3,678; this includes the \$1,800 cost of the program itself. By comparison, mean per-person costs in year one among the nointervention population amounted to \$5,898. **Figure: 1** Total Costs to Health Fund - Per Person Cancer Support Program Participants versus No Intervention



The 2019 the cost difference between the two groups of \$2,220; represents a cost avoidance to the health insurer, in terms of fewer benefits paid out to members who have completed the Cancer Support Program over and above the \$1,800 cost of the program.

4.2 Hospitalisation

Cancer Support Program survey respondents were asked if they had been admitted to hospital as an inpatient in the year since completing the program; and if so, how many nights did they stay in hospital. Private patient overnight hospitals costs are assumed to average \$929 per night ¹⁵.

As shown in table 2 below, among cancer support program respondents, the mean per person hospital stay in the first year postprogram completion was 1.58 nights, which would result in a cost to the health fund \$1,537 per policyholder. By comparison, the mean per-person hospitalisation rate in year one among the benchmark sample was 3.9 nights, amounting to costs of \$3,606.

The \$2,069 difference between the two groups in 2019 represents the costs saved by the health fund in fewer benefits paid out to members who have completed the Cancer Support Program. As shown in figure 2 below, the savings continue through years two and three

Table 2: Hospitalisation – Mean Inpatient Nights Per Person - Cancer Support ProgramParticipants versus No Intervention

Costs	Year 1	Year 2	Year 3
Cancer Support Program Participants	1.58	1.14	0.92
Cancer Survivors No Intervention	3.9	2.1	1.7
Difference	1.32	0.96	0.78

Figure 2: Hospitalisation - Costs to Health Fund Per Person - Cancer Support Program Participants versus No Intervention



CSP participants were admitted to hospital less than half as frequently as the 'no-intervention' group in the twelve months after completing the program. As such the costs avoided from reduced hospital admissions/readmissions generate fund the largest savings 'bucket' for the health fund. A difference between the two groups of \$2,069 in year one, dropping to \$1,570 in year two and finally \$1,332 in the final year.

4.3 Inpatient Hospital Psychiatric Services (per day)

Per day costs for inpatient private psychiatric hospitals, were sourced from the 2019 SIRA NSW Private Hospital Fee Schedule and for the purpose of this model have been set at \$877.77 per day in 2019.

Data for the baseline population costs and psychiatric hospital admissions was triangulated from four recent studies focusing on the hospitalisation experiences of cancer survivors^{1617 18 19}. From the studies, including a 2015 New Zealand national cohort study of 8762 and 4022 people with breast and colorectal cancer respectively; we've calculated approximately nine percent of cancer survivors self-admit to inpatient psychiatric hospital services in the first year after their primary cancer treatment.

For the baseline comparator group in year one, the per-person average stay was 1.32 days, declining to 0.75 days in years three. None of the Valion Health sample recorded a psychiatric hospital admission. As such, no costs apply.

Costs	Year 1 Costs	Year 1 Days	Year 2 Costs	Year 2 Days	Year 3 Costs	Year 3 Days
Cancer Support Program Participants	0	0	0	0	0	0
Cancer Survivors – No Intervention	\$1,157	1.32	\$806	0.91	\$623	0.75
Difference	\$1,157	1.32	\$806	0.91	\$658	00.75

Table 3: Inpatient Psychiatric (per day) – Mean Days and Costs to Health Fund Per Person – CancerSupport Program Participants versus No Intervention



Hospital psychiatric services, after hospital admissions is the second largest cost category borne by cancer survivors, the public health system and/or their health insurer.

The Cancer Support Program includes substantial psychosocial support provided by clinical psychologists. This might partly explain why none of the CSP sample required inpatient hospital psychiatric services.

Using the baseline proportion of nine-percent of survivors requiring an inpatient stay in the first year and applying this to the non-intervention group - the cost to the insurer in Year One is \$1,157, decreasing to \$806 in Year Two and \$658 in Year Three



4.4 Acupuncture and Chinese Herbal Medicine

Chinese acupuncture and Chinese herbal medicines are covered in the Top Extras policies of each of the five insurers. Cancer Support Program participants averaged just over half the number of visits - 1.75 in the first twelve months after the program; of the nonintervention sample – average of 3.2 visits, as shown in table 4 below.

Table 4: Acupuncture – Visits Per Person Cancer Support Program Participants versus NoIntervention

Number of Consults	Year 1	Year 2	Year 3
Cancer Support Program Participants	1.75	1.64	0.92
Cancer Survivors No Intervention	3.2	3.0	1.7
Difference	1.45	0.96	0.78

Costs applied to Chinese Herbalism and Acupuncture costs are assumed to average \$65 for subsequent 45-minute sessions. The mean benefit paid by the five insurers for a 45-minute session is \$40. The cost comparisons between the two groups are shown in figure 3 below.

Figure 3: Acupuncture & Chinese Medicine Casts to Health Fund - Per Person Cancer Support Program Participants versus No Interventiion



Whilst the utilization rate among CSP participants is just over half that of the non-intervention group, the benefits paid are relatively minor. As such the potential costavoidance for the health fund on this treatment is marginal.

4.5 Acupuncture and Chinese Herbal Medicine

Recommended charges for a standard/ subsequent 45-60 minute physiotherapy session are \$100, of which \$60 would be paid in benefits under Top Extras. Table 5 below compares the two groups on the number of visits to either a physiotherapist or exercise physiologist.

Table 5: Physiotherapy/Exercise Physiology – Visits Per PersonCancer Support ProgramParticipants versus No Intervention

Number of Consults	Year 1	Year 2	Year 3
Cancer Support Program Participants	2.43	1.32	0.98
Cancer Survivors No Intervention	7.2	3.9	2.9
Difference	4.77	2.58	1.92

Figure 3: Acupuncture & Chinese Medicine Casts to Health Fund - Per Person Cancer Support Program Participants versus No Interventiion





CSP participants report significantly fewer physiotherapy and/or exercise physiology appointments. As pain and fatigue are two of the most common adverse health effects of cancer, each of these treatments are at the heart of Valion Health's model-of-care, The positive results shown here are also replicated in a pre and post program analysis of health outcomes undertaken in conjunction with this cost-effectiveness study.

4.6 Speech Pathology

Our research found the utilisation of speech pathology services to be less frequent when compared to other services. As such, the frequency counts and cost savings were marginal by comparison. Speech therapy costs for the purpose of this study were assumed to be \$134 per subsequent 30-minute session, of which the average benefit amount paid to members on Top Extras is \$83. Table 6 below compares the average number of visits/consultations in each of the three years by CSP participants and the non-intervention sample. None of the Valion Health sample reported speech pathology consultations, as such, no costs apply to the CSP sample in the chart – Figure 5 further down.

Table 6: Speech Pathology – Mean number of consultations per person – Cancer SupportProgram Participants versus No Intervention

Number of Consults	Year 1	Year 2	Year 3
Cancer Support Program Participants	0	0	0
Cancer Survivors No Intervention	1.2	0.96	0.82
Difference	1.2	0.96	0.82

Figure 5: Speech Pathology - Costs to Health Fund Cancer Support Program Participants versus No Intervention



Visits/consultations with speech pathologists were not common in the population wide - no intervention sample, as such even though there were no recorded consultations among the CSP survey sample the costs avoided or savings are relatively minor as a portion of the total.

4.7 Dietary Advice

Benchmark dietary advice consultation costs are determined to be \$75 per session and \$55 in benefits per session. The average number of visits/consults per person in each of the two groups is shown in table 7 below.

Table 7: Dietary Advice – Mean Visits and Costs to Health Fund Per Person - Cancer SupportProgram Participants versus No Intervention

Number of Consults	Year 1	Year 2	Year 3
Cancer Support Program Participants	0.48	0.44	0.41
Cancer Survivors No Intervention	4.4	4.1	3.8
Difference	3.92	3.65	3.39

Figure 4: Speech Pathology - Costs to Health Fund Cancer Support Program Participants versus No Intervention



Again in relation to dietary advice, as with the other services, the Valion Health per-person health service use and subsequent costs twelve months after completing the program are significantly lower than the comparator – nointervention.



5. Conclusions:

Historically, the main foci of cancer care in Australia have understandably been on cancer treatment and surveillance, with less attention afforded to effective and efficient rehabilitation processes. Compared with rehabilitation in other settings such as diabetes or cardiovascular disease, cancer rehabilitation is relatively less established.

However with the number of people living with and beyond a cancer diagnosis increasing in the last decade and set to increase over the next 10 years, more importance needs to be placed on provision of, and equity of access to, high quality rehabilitation. The rehabilitation needs of people living with and beyond cancer need to be considered in the long term. Because of medical advances in cancer care, it is now a long term condition. Ongoing needs are not currently met which results in greater levels of disabilities and other long term health problems. These impact negatively on the lives of individuals and cause ongoing demands on the health and social care system.

Cancer rehabilitation aims to maximise physical function, promote independence and help people adapt to their condition; empowering patients living with and beyond cancer with supported self-management. A range of AHPs provide rehabilitation services and, through developing self-management skills, patients can take an active role in adjusting to life with and after cancer.²⁰

Rehabilitation supports people to; manage health conditions and disabilities caused by cancer and its treatment, reduce disease progression. They increase people's ability to manage health conditions and disabilities caused by cancer and its treatment. This enables them to regain confidence, function and mobility. For example, the progression of prostate cancer was reduced by 57% among men who engaged in three hours a week of moderate intensity exercise.²¹ There is similar evidence for breast and colorectal cancers.



Rehabilitation of cancer survivors is specifically developed for impairments resulting from cancer. The intervention for which the largest evidence base exists is physical exercise.²² It is effective for alleviating fatigue, improving physical fitness, reducing depression, and many other symptoms, and further increases health-related quality of life.²³

Psychological therapy and psychoeducation can be provided for alleviating, among others, fatigue, depression, and anxiety.

Return-to-work interventions are designed to support cancer survivors in returning to the workplace, which often is a difficult process, and mostly consist of counselling with an occupational physician. Many other forms of interventions have been evaluated and shown to assist with recovery and symptom alleviation, such as mindfulness-based stress reduction, music interventions, tai chi, or yoga.

While the health and quality of life benefits of cancer rehabilitation are well established; there is currently limited evidence of costs and benefits of cancer rehabilitative services, from a societal, health system and payor perspective. This cost-effectiveness study has taken the perspective of the payor, in this case specifically that of the Private Health Insurer.

The results of the analysis suggest that by offering the Valion Health Cancer Support Program to eligible policyholders who've been diagnosed with cancer, are undergoing cancer treatment or are living with cancer post treatment, the payor could realise in significant savings on a per-member basis, over and above the cost of the program itself.

The study together with the periodic Cancer Support Program health outcomes studies clearly indicate Valion Health Cancer Support Program participants are able to recover faster, live fuller lives. This the first economic evaluation of the program shows the relatively low use of a wide range of health services, relative to the broader population of Australian cancer survivors. In turn cancer survivors who undertake the Cancer Support Program are likely to cost nib and other health insurers significantly less in benefits paid out, than the vast majority of the nearly one million Australians living with cancer.



6. Appendices

6.1 Baseline health service costs

Benchmark Health Fund Benefit Costs – By Episode, Inflation adjusted from 2019 at 4.8% per annum²⁴.

Sources

- 1. Mean benefits per service paid by each of HCF, NIB, BUPA, Medibank HBF to members holding Hospital Gold and Top Extras Cover.
- 2. Hospital Casemix Protocol: Annual Report 2017-18
- Independent Hospital Pricing Authority; National Hospital Cost Data Collection Private Hospital Report: Round 21 (Financial Year 2016-17) March 2019
- Benefit inflation Mean PHI Benefits Paid & Utilisation Per Member, FY13-FY18 - 2019-20, Source: Private Healthcare Australia, Pre-Budget Submission 2019-20 Improving the Value and Sustainability of Private Healthcare

Cost per service – Based on the mean benefits paid per item by each of the five largest Australian funds on Hospital Gold & Top policies	2019 Cost Per Service (MBS	Mean PHI benefit paid - 2019	Mean PHI benefit paid - 2020	Mean PHI benefit paid - 2021 Year 3
Allied Health Professionals				
Registered Psychologist (after Medicare benefit exhausted)	\$180.00	\$100.00	\$104.80	\$109.80
Exercise Physiologist (30 min)	\$71.00	\$40.00	\$41.92	\$43.93
Occupational Therapy (subsequent visit)	\$90.00	\$72.00	\$75.45	79.10
Physiotherapy (Std consult)	\$100.00	\$60.00	\$62.88	\$65.90
Speech Pathology (subsequent 30 min session)	\$134.00	\$83.00	\$86.98	\$91.15
Chiropractic (subsequent visit)	\$58.00	\$40.00	\$41.92	\$43.92
Acupuncture	\$65.00	\$40.00	\$41.92	\$43.92
Dietetics	\$75.00	\$55.00	\$57.64	\$60.40
Remedial Massage	\$65.00	\$40.00	\$41.92	\$43.93
Difference	3.92	3.65	3.65	3.39
Hospitalisation single room (per day) Ecl excess \$500 -\$750	\$929	\$929	\$975.45	\$1,024.22
Inpatient psychiatric admission (per day)	\$877.37	\$877.37	\$920.85	\$966.89



6.3 The modified iMCQ Questionnaire

The Valion Health - Cancer Support Program

A follow-up survey about your use of health and medical services since completing the Cancer Support Program.

Why are we asking you to complete this questionnaire?

The findings from this survey will help us to improve the Valion Health Cancer Support Program; to further enhance the health and quality of life for our program participants.

Specifically, the study will help us to understand better the longer-term health and quality of life effects experienced by our clients who completed the Cancer Support Program up to eighteen months before this study.

We hope the findings can also be used to compare the relative effectiveness and efficiency of the Cancer Support Program with the standard procedure of cancer treatment (e.g. surgery, radiotherapy, chemotherapy) support cancer support/rehabilitation programs.



What is the questionnaire about?

The questionnaire is about your use of health services care in the period since you completed the Cancer Support Program. We start with general questions.

Then we ask questions about your outpatient visits to health providers including, for example, GPs, specialists, mental health professionals (including psychologists, psychiatrists), physiotherapists, dieticians, exercise physiologists, and other medical and allied health professionals

We then ask questions about whether you have been admitted to hospital since completing the program if your readmission has been more than once, the reason or condition that resulted in you needing to be admitted and how long you was your stay in the hospital for example.

What happens to your answers?

Only the researchers will see your answers. So no one else. Your data will be anonymous. This means that they are not traceable to you. No one will tell anyone that you participated in the study.

Your answers will be used only to help Valion Health further develop the program, and help to provide robust evidence the health benefits and cost-effectiveness of the Cancer Support Program and Cancer rehabilitation overall; versus the status quo.

Robust evidence that will help to build a case for the real unmet need for cancer rehabilitation programs, such as the Cancer Support Program, to help cancer survivors rebuilt their health, enjoyment of life and overall quality of life post-cancer.

Instructions

Please answer all the questions even if you are not sure of the correct answer; your best estimate will be fine.

Your privacy will be maintained at all times, and no personal details will be released or published under any circumstances.

How long will this survey take me to complete?

The survey should take no more than 15 minutes to complete

Part A: General Questions

Question Al. Your Name				
Question A2. What is your date of birt	h?			
Day 🗌 Month 🔲 Year 🔲				
Question A3. What is your gender?				
🗌 Male 🔲 Female				
Question A4. What was your original c	ancer diagnosis?			
 Breast Colon/Bowel Brain Haematological Gynecological Gastrointestinal 	 Skin/ Melanoma Prostate Lung/ Respiratory Testicular Other 			
Question A5. When were you originally Please answer to the best of your recollection to Month Year	y diagnosed as having cancer? The month and year			
Question A6. When did you finish/com treatment? By this am referring to common radiotherapy and/or chemotherapy Again plea the month and year Month	nplete the your original course of I mean post-surgery treatment such as ase answer to the best of your recollection			
Year	plate the Valian Health Cancer			
Support Program? Please answer to the be	est of your recollection the month and year			
Month Year				

Part B: The following questions are about your use of all types of healthcare services in the time since you have completed the Valion Health Cancer Support Program.

By this, we mean any admissions to a hospital, visits to A&E, outpatient services at hospitals/clinics, visits/appointments with GPs, specialists, practice nurses and other health professionals.

Further Instructions

We would like to know about any/all of the Health Professionals you have consulted since completing the Cancer Support Program.

It is about consultations for yourself.. Which consultations count?

- · Appointments because you had health complaint
- · Appointments where the doctor came to your home
- Telephone/telehealth appointments

Which consultations do not count?

- · Appointments for another person, for example for your child
- Telephone calls to make an appointment

Are you unsure about the exact number of consultations?

Please tell me how many consultations you have had approximately when I ask about each.



Question 1a. Have you consulted a general practitioner since completing the Cancer Support Program?



Have you ticked "Yes"? Then answer question 1b. Otherwise, continue with question 2.

Question 1b. How many appointments did you have with your GP in the past 12 months?



Question 2. How many appointments did you have with a GP practice nurse since completing the Cancer Support Program?

] Number of appointments with a GP practice nurse

Question 3. How many appointments did you have with a physiotherapist in since completing the Cancer Support Program?

I		1
l		
		_
		п

No appointments

..... appointments

Question 4. How many appointments did you have with an occupational therapist since completing the Cancer Support Program?

i	_	_	_	1

No appointments

..... appointments

Question 5. How many appointments did you have with an exercise physiologist since completing the Cancer Support Program?

No appointments

..... appointments



Question 6. How many appointments did you have with a speech therapist since completing the Cancer Support Program?



No appointments

..... appointments

Question 7. How many appointments have you had with a dietitian since completing the Cancer Support Program?

	٦
	_

| |

No appointments

..... appointments

Question 8. How many appointments did you have with a complementary therapist since completing the Cancer Support Program?

- No appointments
- appointments
- Acupuncturist No appointment
- appointments
- Massage Therapist No appointment
- 🔲 appointments
 -] Reflexologist No appointment
 - appointments

Question 9. How many appointments did you have with a psychologist since completing the Cancer Support Program?

Note to interviewer: Add up all appointments with these healthcare providers.

No appointment

..... appointments



Question 10. How many appointments did you have with a Psychiatrist since completing the Cancer Support Program?

Г			1
L			I
-	-	-	-

No appointments

..... appointments

Question 11. Have you received home care since completing the Cancer Support Program?



Question 11a. What kind home care have you had since completing the Cancer Support Program?

Answer yes to all that apply

-	_	_	-
			I
			1

Housekeeping and domestic help

example: vacuuming, making the bed, going for daily groceries



Personal care

example: help with bathing or dressing

☐ Nursing

example: putting on a bandage, administering medication, measuring blood pressure

Approximate Cost of home care \$...... every month

Question 12a. Have you had appointments with a Specialist Physician (example: Oncologist, Pain Specialist, Endocrinologist) since completing the Cancer Support Program?

Please answer yes to all that apply as I read each one out

· Cardiologist

- Pain Specialist
- Rheumatologist
- Specialist respiratory and sleep medicine physician
- Specialist nephrologist
- Haematologist

- Specialist clinical geneticist
- Neurologist
- Clinical oncologist
- Radiation oncologist
- Palliative Medicine Specialist
- Dermatologist

If respondent has answered "Yes"? to any of the Specialists in question 12a.

Then ask question how many times the respondent has visited each of these specialists and record the number in the form below. Otherwise, continue with question 12.

Question 11b. Which types of Specialists have you seen since completing the Cancer Support Program? And how often?

Which type of Specialist did you visit?	How often have you visited this
Example - Cardiologist	example Two times
Pain Specialist	times
	times

Question 12a. Did you visit the hospital for inpatient (overnight) treatment since completing the Cancer Support Program?



Have you ticked "Yes"? Then answer questions 12b and 12c. Otherwise, continue with question 13.



Question 12b. For what kind of treatment was this? Was this for more than one type of treatment? Then enter all types of treatments.

Treatment 1:	 	
Treatment 2:	 	
Treatment 3: .	 	
Treatment 4 [.]		

Question 12c. For what Hospital Admission and for each kind of treatment was this? How long did you spend in the hospital – from the date/day of admission to the date/day of discharge

Treatment 1:. 2 Days	3 – 4 Days	4–6 Days	More than 7 Days
Treatment 2:			
Treatment 3:			
Treatment 4:			

Question 13. How long have you stayed in the hospital? Have you been in the hospital since completing the Cancer Support Program?

Then add all the days together.

days in total in the past 12 months

Question 14. How many times did you visit the emergency department of a hospital since completing the Cancer Support Program?

Not once

🗌 times

Question 15. How many times have you been taken to the hospital with an ambulance since completing the Cancer Support Program?

] Not once

🗌 times



Question 16a. Have you been admitted elsewhere for your health since completing the Cancer Support Program?

For example, in a residential/care centre, psychiatric institution or rehabilitation centre.

🗌 No 🗌 Yes

Have you ticked "Yes"? Then answer questions 18b and 18c. Otherwise, go to the end of the questionnaire.

Question 16b. What kind of health care facility was this? You can tick more than one box.

Residential care centre or nursing home	
Rehabilitation centre	
Mental health institution	
Another institution, namely	
Question 16c. How many nights did you stay at this/these places?	
In the residential care centre or nursing home:	nights
In the rehabilitation centre:	nights
In the mental health institution:	_ nights
In the other institution:	nights

That was the last question. Thank you very much for your time.

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