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WE CARE
COMMUNITY SERVICES

SMU
SINGAPORE MANAGEMENT UNIVERSITY

Programme Evaluation On

WE CARE Community Services Ltd

2018-2019

An Economic Assessment on the Social Impact of WE CARE Community Services

An undergraduate report by
Singapore Management University

An Economic Assessment on the Social Impact of WE CARE Community Services

This programme evaluation is prepared for WE CARE's stakeholders to help understand the economic value of what WE CARE does and help in assessing the areas of growth for WE CARE.

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SMU
SINGAPORE MANAGEMENT UNIVERSITY

24 March 2020

Mr Leslie Goh
WE CARE Community Services
11 Jalan Ubi
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Singapore 409074

Dear Leslie,

Impact Report for WE CARE

WE CARE engaged SMU, through the SMU-X course titled "Economic Development in Asia", to provide an independent measurement of the impact of WE CARE's activities. With the goal of measuring the organisations impact, the team gathered the perspectives of a variety of stakeholders and analysed qualitative as well as quantitative data. The research included a review of internal and external reports, public information about similar organisations and selective interviews of the clients of WE CARE.

This Impact Report is prepared for WE CARE's stakeholders to help understand the economic value of what WE CARE does and help in assessing the areas of growth for WE CARE.

We are grateful to WE CARE, the members of the board, executive team and the entire team for sharing their ideas, information and expertise related to their work. We are also grateful to the team of SMU students who put together this Impact Report. The students were guided by our Faculty member Prof M S Aney and Adjunct Teaching Mentor Mr Swapnil Mishra.

Prof Aney is Associate Professor of Economics at Singapore Management University. Mr Swapnil Mishra is Head of Private Wealth, Kristal.AI. They have been collaborating through projects in the area of Social Impact under the SMU-X program. They can be reached at madhavsa@smu.edu.sg and swapnilmishra@hotmail.com.

SMU-X is an experiential learning framework, which calls for students to take on real-world challenges by collaborating on projects with corporates, non-profit and government organizations. For more information, please visit x.smu.edu.sg or connect with us via e-mail (smux@smu.edu.sg), Instagram (SMU_X) or LinkedIn (SMU-X).

Thank you for allowing us to be a part of creating meaningful impact to the community.

Yours Sincerely,

Mr Kevin Koh
Head
SMU-X
Office of the Provost

WE CARE Impact Report 2018

Executive Summary

AIM

The aim of this report is to quantify the total social benefits created and costs incurred by WE CARE Community Services in serving its drug and alcohol addiction groups to measure its social impact per dollar incurred within the year of 2018.

INPUTS & PROGRAMMES

In 2018, WE CARE's key inputs, programmes delivered and estimated attributed costs to its drug and alcohol addiction groups are as follows. The total cost incurred takes into account staff wages, the estimated monetary value of volunteers' time and any additional operating costs sustained in running of the programmes.

Staff Capabilities	Volunteers	Programmes	Total Cost
4 Management Staff **2** Associate Therapists **1** Associate Trainer **3** Part-time Staff	**102** Volunteers **2357** Volunteer Hours	Counselling Education & Therapy Groupwork Drop-in Centre Recovery Support Groups Charity Events	**$391,244**

OUTCOMES ACHIEVED

In 2018, as a result of clients' successful recovery, WE CARE created benefits which accrue to clients, the government and society. For each category of benefits, suitable financial proxies and/or survey data were used to construct the average benefit per life transformed. This is then multiplied by the number of lives "transformed", defined as the number of clients who successfully crossed the 6-month sobriety mark in 2018, to obtain the final benefit value per year. The values calculated at this initial stage assumes that the clients remain sober for the entire year following 6-month sobriety.

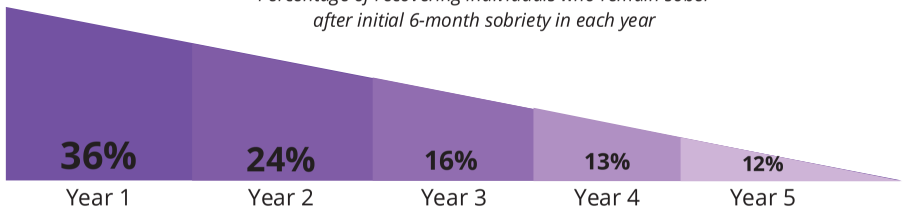
CLIENTS	GOVERNMENT	SOCIETY
Expenditure on Drugs/Alcohol Expenditure on Treatment Improvement in Income	Reduced Cost of Housing Inmates Reduced Law Enforcement Costs* Reduced Legal & Adjudication Costs*	Reduced Victimisation Costs*

*These are crime-related costs of addiction

DROP-OFF AND DISCOUNTING

Since benefits of sobriety are likely to extend beyond the current year, the annual benefit calculated is extended into future years. The methodology involves the multiplying the annual benefits by the probability of a recovering individual remaining sober in each future year. This drop-off schedule accounts for the possibility of clients relapsing in future years, including the first, after achieving initial 6-month sobriety. To ensure that benefits are not overestimated, benefits are considered for only a maximum of 5 years. Furthermore, benefits accrued in future years are discounted accordingly using the return rates of the Singapore Savings Bond (SSB) as a suitable discount rate.

Percentage of recovering individuals who remain sober after initial 6-month sobriety in each year



TRANSFORMING LIVES REBUILDING FAMILIES

WE CARE is a non-profit community-based facility.

We provide professional help and support to individuals and families affected by problems with drugs, alcohol, gambling, sex, pornography, gaming, the internet, shopping and shoplifting.

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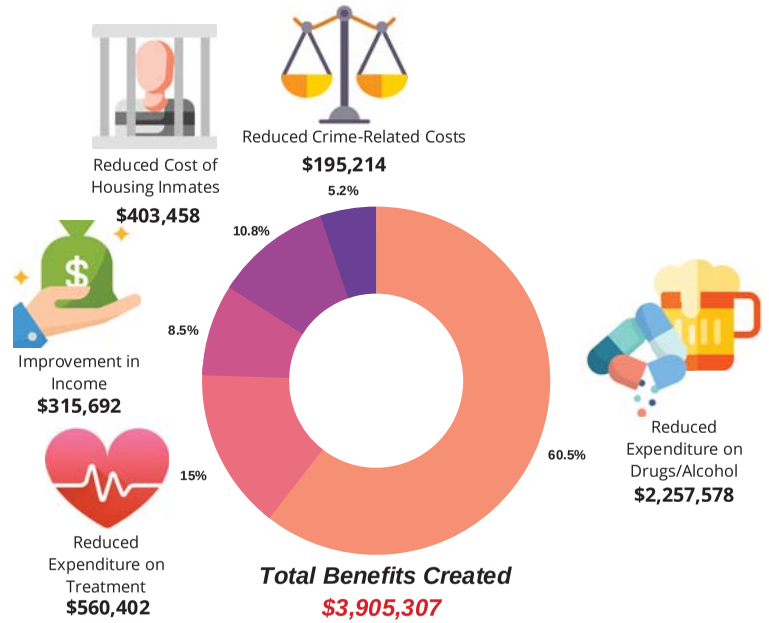
BREAKDOWN OF BENEFITS

After discounting the benefits across future years, the total benefits generated and the associated breakdown by category is given below.



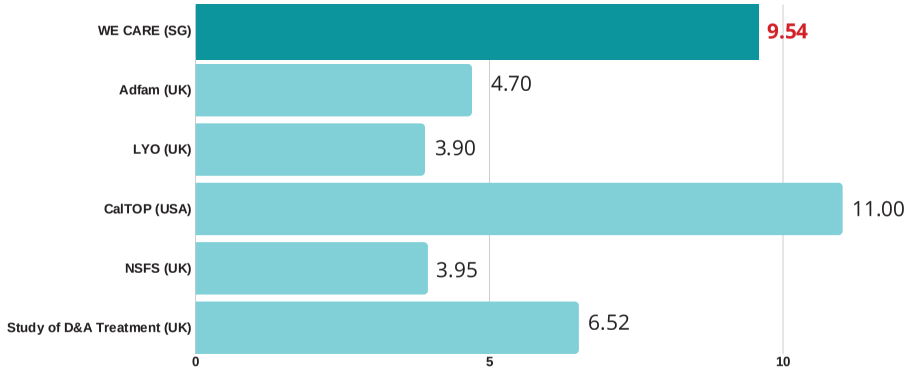
BENEFIT-COST RATIO

Dividing the total benefits created by the total costs incurred, the benefit-cost ratio for WE CARE in 2018 is obtained.

*For every **$1** that WE CARE receives, it generates **$9.54** in social benefits.*

BENCHMARKING

A comparison with similar organisations was conducted to assess WE CARE's relative social impact. The study finds that WE CARE performs reasonably well with a benefit-cost ratio that is higher than most other comparable organisations involved in similar social work.



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Conclusion

From the SROI calculation and subsequent benchmarking exercise conducted, it is evident that WE CARE demonstrates a high value for money in providing effective services for the treatment of drug and alcohol addiction. This provides solid grounding for stakeholders and donors to appreciate the material impact of WE CARE's services on the lives of its clients. In addition, despite its strengths in communicating the extent of a charity's contributions to its stakeholders, the practice of measuring social impact is still relatively less developed in Singapore. The methodology employed could lay the foundations for other similar economic studies to be conducted by NAMS and other addiction charities in Singapore. Such studies, when conducted in a fair and transparent manner, would allow the public to better understand the value of the services addiction charities provide to their clients, and in so doing, encourage a stronger local culture of lending support to these organisations.

Introduction

About WE CARE Community Services Limited

About WE CARE Community Services Limited

WE CARE Community Services Limited is the first non-denominational outpatient addiction treatment centre which provides specialized programmes to help beneficiaries overcome their addiction and achieve better outcomes in life. As a charity-based organization, WE CARE derives majority of its funding from government grants and private donations. It offers counselling services and programmes for several forms of addiction, including drugs, alcohol, gambling, sex, eating disorder, internet and shoplifting.

WE CARE's Staff Capabilities

WE CARE operates on a relatively small team of 6 therapists who provide counselling services to the beneficiaries. Among them, 4 therapists also hold management responsibilities and oversee the operations, finances and communications of the centre. Currently, it also has an associate trainer who conducts training workshops to equip the beneficiaries with practical life skills. They also have a part-time staff of 3 people.

WE CARE's Work in the Area of Drug and Alcohol Addiction

To enable the recovery process, WE CARE provides counselling services and runs specialised programmes to treat different forms of addiction. For alcohol and drug abuse, the programme designed for beneficiaries typically includes a screening, assessment and counselling session. These are the programmes available:

SOAR (Substance or Alcohol Recovery) Programme

- A structured therapy programme consisting of individual, family and group sessions designed for people with substance, prescription medications and/or alcohol abuse problems

SMART (Self-Management and Recovery Training)

- A programme incorporating tools based on evidence-based addiction treatment, including Cognitive Behaviour Therapy and Motivational Interviewing.

ENGAGE

- A programme in which clients and their family members receive clinical assessment, in addition to weekly, biweekly or monthly counselling and referral for shelter and/or financial services.

CSO (Counselling for Significant Others)

- A counselling treatment programme designed primarily for family, friends or significant others of people in recovery, or those struggling with a substance or behavioural dependency problem.

Besides providing treatment services in the area of alcohol and drugs, WE CARE also conducts drop-in centre activities, preventive educational programmes (in collaboration with other organisations) and awareness workshops. For example, for the target group of Management-level and HR personnel, WE CARE has conducted workshops like 'Recognising Signs & Symptoms of Addiction' and 'How to start a conversation about Addiction to your employee or student'.

Additionally, WE CARE facilitates the formation of recovery support groups which aim to provide a safe environment for beneficiaries to share their struggles and experiences on a regular basis. This helps beneficiaries to understand that they are not alone and provide them with mutual support in the battle against addiction.

<u>Stakeholders</u>

WE CARE's stakeholders are the staffs of WE CARE, its clients and their families, prisons and various ministries and institutions. Some of these partners include:

the extrapolation to the population and analysis based on these outcomes highly unreliable.

Additionally, with unavailability of Singapore-based data, some benefit estimations like law enforcement costs, legal and adjudication costs and victimisation costs take inspiration from global studies (particularly, Alaska) - which may not produce the most unbiased estimations. The same limitation is faced while performing benchmarking because SROI reports for Singapore-based organisations working in the same sphere as WE CARE or global organisations addressing exactly the same beneficiary group as WE CARE, were unavailable.

Going forward, WE CARE can focus on more rigorous data collection methodologies targeted towards a larger sample size. This will help to account for the other non-monetary benefits excluded from the current SROI calculations. It can also try to source for Singapore-specific statistics on the aforementioned benefits inspired from Alaska's study. This will help to make SROI calculations more representative and contextual.

With the above limitations in mind, the reader is advised to treat the numeric findings with suitable caution.

(Outpatient Treatement)			selected beneficiaries from 43 abuse treatment service providers across California
Study of Drug and Alcohol Treatment in UK	4.7:1 to 8.4:1 (2010)	Health, crime, *education* and employment, and *adult problematic substance misuse*	Not an organisation-specific benefit-cost ratio but one obtained using treatment outcomes for randomly selected young people having undergone drug and alcohol treatment in the UK Target group is young people whereas WE CARE's target group is adults of all ages
National Specialist Family Service, UK	3.95:1 (2013)	Healthcare, drug rehabilitation, *homelessness*, *foster care*/care homes (for children) and crime	Target group is parents with substance addiction whereas WE CARE's target group is adults of all ages
**Italicised benefit considerations are the ones which are very different from those accounted for WE CARE's SROI calculation*			

Limitations and Further Studies

While SROI approach for WE CARE talks about the benefits experienced by the substance users (in form of reduced expenditure on drugs, alcohol and treatment), the government (in form of reduced incarceration and criminal justice system costs) and the society (in form of victimisation costs), it doesn't include the benefits experienced by beneficiaries like increased self-esteem, reduced negative feelings like helplessness, anger or rumination as well as those experienced by beneficiaries' families (in form of better relations) and corporates (in form of reduced absenteeism and higher productivity).

Natural

While WE CARE did attempt to survey respondents for change in outcomes such as financial independence, family relations and absenteeism from work (to name a few) via a Likert scale format of questions, the size of this sample was very small, making

- National Council of Social Services (NCSS)
- National Addiction Management Services (NAMS)
- The State Courts
- Ministry of Social and Family Development
- Singapore Totalisator Board
- Singapore Pools (Private) Limited
- & various family service centres and halfway homes.

At the forefront of service providence, WE CARE engages in their certified and trained counsellors to provide counselling support and therapy for clients and their families. The base of clients at WE CARE are joined efforts with the various public institutions, whereby referrals are made. Likewise, WE CARE also works as partners with various family service centres and halfway homes in terms of programmes and activities, as many of its clients attend programmes concurrently over there as well. Meanwhile, in the management of funding, the Singapore Tote Board, Singapore Pools and public donations are sponsors of funding and donations towards the operation of WE CARE and its programmes. This helps WE CARE to be able to provide highly subsidised, or free of charge services to its clients.

Addiction Landscape in Singapore

In Singapore, the most prevalent addiction problems are those of drugs, alcohol, gambling and increasingly, internet and gaming. This report focuses only on the drug and alcohol aspects since analysis is only conducted on these areas. For drug addiction, the number of arrested drug abusers barely declined from 3265 in 2016 to 3091 in 2017 with a significant 40% of these being new abusers, indicating that the problem continues to be very worrying in Singapore.[1] For alcohol addiction, there seemed to have been a rise in alcohol abuse between 2016 and 2010 from 3.1% to 4.1%, although alcohol dependence rates have remained the same throughout the

[1] Based on *An Overview of Singapore's Drug Situation in 2017* by Central Narcotics Bureau in 2018. Source: https://www.cnb.gov.sg/docs/default-source/drug-situation-report-documents/cnb-annual-stats-release-for-2017_12-jun.pdf

same period.[2] In the same 2016 study by the Institute of Mental Health, alcohol abuse was also found to be one of the top 3 mental disorders in Singapore.

To help addicts overcome their addiction problems, addictions management centres which cover varying scopes of addiction have been established in Singapore. The most prominent one would the National Addictions Management Services (NAMS), which provides both clinical treatment and counselling support to patients recovering from a wide variety of addiction problems. In addition to outpatient clinics, it has inpatient wards to provide residential services for patients.[3] Besides this, there are a few smaller organisations and centres which are mostly private and are comprehensive in terms of the variety of addiction problems that can be treated. One such example is The Cabin, which is a private addictions management treatment company that provides outpatient services for both substance addiction and process addiction within Singapore.[4] Similarly, WE CARE has a comprehensive scope but it is not-for-profit and relies largely on donations.

Aside from the above-mentioned centres that provide one-stop services for all kinds of addiction problems, there are organizations and support groups that deal with specific addiction types. For example, Alcoholics Anonymous (AA) is a self-funded, non-professional mutual aid movement to allow alcohol addicts to share their experiences and help one another break free of alcoholism.[5] Another example would be Singapore Al-Anon, which offers support groups and gatherings for families and friends of alcohol addicts.[6]

Need for Impact Measurement

[2] Based on *Latest nationwide study shows 1 in 7 people in Singapore has experienced a mental disorder in their lifetime* by Institute of Mental Health in 2018. Source: https://www.imh.com.sg/uploadedFiles/Newsroom/News_Releases/SMHS%202016_Media%20Release_FINAL_web%20upload.pdf
[3] National Addictions Management Services (NAMS) website. Source: https://www.nams.sg/about-us/Pages/about-NAMS.aspx
[4] The Cabin Singapore website. Source: https://www.thecabinsingapore.com.sg/services/
[5] Alcoholics Anonymous website. Source: http://singaporeaa.org/about.html
[6] Singapore Al-Anon website. Source: https://www.al-anonsingapore.org

Study of Drug and Alcohol Treatment in UK

The Department for Education conducted a cost and benefit analysis on 24,000 young people's drug and alcohol treatment in the United Kingdom[25]. The benefit-cost ratio was found out to lie between 4.7:1 to 8.4:1. While the range may lie below WE CARE's ratio of 9.54:1, it is important to consider that the focus of the study was young people as opposed to WE CARE which caters to adults of all ages.

National Specialist Family Service, UK

The Phoenix Futures National Specialist Family Service (NSFS) deals with parents that are problem drug users (including problem drink users) and helps them to overcome their dependence on drugs. An SROI report[26] in 2013 estimated the benefit-cost ratio of this organisation to be 3.95:1, much lesser than WE CARE's 9.54:1. However, as in the other cases, it is to be noted that NSFS exclusively caters to parents at risk and their children.

A table summarising the comparison with the 5 cases is shown below:

Case	Benefit-Cost Ratio (Year)	Consideration for Benefit Calculation	Key Difference w.r.t. WE CARE's services
We Care	9.54:1 (2017-2018)	Drug and alcohol expenditure, treatment, income, housing inmates, law enforcement, legal and adjudication costs, victimisation	
Adfam, UK	4.7:1 (2011)	Health and well-being benefits for *families* and substance users, *relationships*, financial situation, criminal justice system	Adfam is only a family support service
Leicestershire Youth Offending (LYO), UK	3.9:1 (2013)	Drug and alcohol expenditure, health service, incarceration, criminal justice system, *government support for those out of work*, *families* of clients	LYO's target group is youths whereas WE CARE's target group is adults of all ages
Benefit–Cost in the California Treatment Outcome Project (CalTOP)	11:1 (2000-2001)	Medical care, mental health services, earnings, criminal activity and *government's transfer program payments*	Not an organisation-specific benefit-cost ratio but one obtained using treatment outcomes for randomly

[25] Based on the UK Department of Education's cost-benefit analysis on drug and alcohol services provided to young people. Source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/182312/DFE-RR087.pdf
[26] Based on the SROI Forecast done for the National Specialist Family Service (Phoenix Futures). Source: http://www.socialvalueuk.org/app/uploads/2016/03/SROI%20NSFS%20d5(4).pdf

ratio of 3.77:1, a figure less than Adfam's but respectable enough in the sense that it measures the impact WE CARE is creating beyond its core mission of stopping drug and alcohol usage amongst its beneficiaries.

Leicestershire Youth Offending, UK

Leicestershire Youth Offending (LYO) is a multi-agency partnership involving the Local Authority Police, the Probation Service and Youth Services that helps juvenile criminals who are at risk of reoffending. In 2013, a study[23] was commissioned to evaluate the value of substance misuse work at the LYO. It was found that for every pound invested, the LYO could generate a social return equivalent to 3.9 pounds.

While WE CARE looks to significantly outperform the LYO, it is important to note that WE CARE works with adults of all ages, unlike the LYO which works exclusively with children and teenagers.

Benefit–Cost in the California Treatment Outcome Project (CalTOP)

The project involved examining costs and monetary benefits associated with substance abuse treatment using data from 43 substance abuse treatment providers in 13 counties of California during 2000–2001[24]. While the project focused on methadone treatment, outpatient treatment as well as residential treatment, one can narrow attention to outpatient treatment which would make the analysis comparable to WE CARE's.

The benefit-cost ratio for the outpatient treatment was found out to be 11:1, which is higher than WE CARE's 9.54:1. However, the key thing to note here is that CalTOP considers government transfer payments as another monetary benefit and doesn't consider cost of volunteerism in its calculations. Accounting for both these factors can reduce the performance gap between WE CARE and CalTOP, thus making WE CARE's ratio of 9.58:1 respectable enough against CalTOP's 11:1.

[23] Based on the SROI Report prepared for Leicestershire Youth Offending Service. Source: http://www.lsr-online.org/uploads/sroi-substance-misuse-final.pdf

[24] Based on the benefit-cost analysis conducted on the California Treatment Outcome Project. Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1681530/

While the organisation does create social impact by helping its beneficiaries, it is important to measure this impact and gain key insights from it. The fact that WE CARE is a charity-based organisation (deriving a majority of its funding from government grants and private donations) further necessitates the need to put this impact into numbers. In other words, it is imperative to quantify this social impact so that WE CARE is able to justify the activities it has been undertaking using the provided funds and henceforth, ensure a sustainable revenue stream to continue undertaking activities for helping its beneficiaries.

Our report serves this purpose, with a particular focus on the value that has been created through the treatment of beneficiaries suffering from drug and/or alcohol addiction.

Methodology

SROI Approach

This report utilizes the Social Return on Investment (SROI) methodology to quantify the social impact created by WE CARE in the year of 2018. Under this approach, the aim is to quantify the tangible and intangible benefits to society which are created through WE CARE's activities. These benefits may accrue to various stakeholders, including the beneficiaries, the government and the general public. When identifying the types of benefits included, only those that would have a reasonable material impact on final outcomes are considered to achieve simplicity and clarity of analysis.

Upon initial estimation of the annual benefit, a measure known as the deadweight is then constructed using the counterfactual. This measure answers an important question: What benefits would still be experienced in the absence of WE CARE? For example, it is expected that a small portion of drug addicts would naturally quit their addiction even in the absence of intervention. If so, the benefit and/or cost savings attached to this would then have to be subtracted from the initial benefit to get a more accurate estimate of WE CARE's real contribution.

Next, the analysis assumes that the benefits or cost savings created as a consequence of WE CARE's activities in a single year can transcend into future years. For example, drug addicts who are recovering well after benefitting from WE CARE's activities may reduce their expenditure on drugs in future years, in addition to the current year. However, to avoid overestimation of potential benefits, a suitable drop-off period is selected to allow the benefits to cease entirely at some point in the future. Furthermore, future benefits are discounted accordingly to obtain their present value using a suitable discount rate.

Finally, the final benefit created by WE CARE will be divided by the total tangible and intangible costs associated with creating the activities from which the beneficiaries gained. This provides a useful metric known as the Benefit-Cost Ratio, which provides the social impact created per dollar spent. This value can then be compared to other

Discussion

Benchmarking

One can compare the benefit-cost ratio for WE CARE against other organisations to give a more meaningful interpretation.

While it may be intuitive for WE CARE to be compared against peers that are also based in Singapore, such as the National Addictions Management Services (NAMS) and the Singapore Anti-Narcotics Association (SANA), information regarding the benefit-cost analyses of these organisations was unavailable.

Therefore, benchmarking was done using 5 different global cases to give a holistic view as to where We Care stands. The choices are based on similarity in scope of work (drug and alcohol addiction) to WE CARE. In addition, the social impact calculation methodology undertaken in these cases also involved incorporating impact on substance users, the government and society while calculating the total social benefit. These total social benefits when divided by total investments led to benefit-cost ratios, which were then used to benchmark WE CARE against its competitors.

The organisations benchmarked against include the following:

Adfam, UK

Adfam is a charity that provides support services to families affected by drugs and alcohol abuse in the United Kingdom. The report on Adfam's social returns on investment[22] discloses a benefit-cost ratio of 4.7:1 as compared to WE CARE's 9.54:1. Taking into account that Adfam works mainly in improving the mental health of close family members whose lives have been impacted by substance abusers, Adfam's ratio does not include the benefits that are direct result of sobriety. In particular, foregone expenditure on drugs and alcohol consumption, is not included in Adfam's calculations. Subtracting this benefit from benefit calculations of WE CARE gives us a

[22] Based on the SROI Report prepared for Adfam. Source: https://www.adfam.org.uk/files/docs/Adfam_SROI_report.pdf

Sensitivity Analysis

Firstly, a sensitivity analysis relating to the estimates obtained for the expenditure on drugs and alcohol, treatment expenditure and improvement in income was carried out. These three estimates were chosen as they relate directly to the beneficiary. Among the key sources of benefit—the Beneficiary, the Government and the Society, it was expected that the greatest volatility in benefits experienced would be seen between individuals. Hence, a larger margin of error is to be expected for the benefits experienced by the beneficiary.

The expenditure on Drugs and Alcohol was allowed to vary via individual differences in past consumption. As for treatment, a range of number of detox and counselling sessions was constructed around the best estimate to account for the differences in rate of improvement between beneficiaries. Also, since the sample mean income of ex-offenders after attending WE CARE was used as the best estimate for the improvement in incomes, half a standard deviation above and below the best estimate was applied to obtain the upper and lower bounds of our estimates.

Secondly, as mentioned earlier in the section on 'Deadweight', the second layer of deadweights might underestimate the contributions of WE CARE in the drug and alcohol addiction landscape. Hence, calculation of the extreme scenarios was done, under which the percentage of people who don't reoffend in Singapore was first taken as the actual figure, that is 73.4% (which gives the lower bound) and then 0% (which gives the upper bound). Focus is on relaxing assumptions around the reoffending rate (and not crime rate) because this deadweight contributed most towards discounting of the benefits WE CARE truly creates.

Thus, applying the above-mentioned ranges on the calculations, an upper and lower bound of the benefit-cost ratio was obtained as follows:

	Best Estimate	Lower Bound	Upper Bound
Overall Benefit-Cost Ratio	9.54 : 1	8.09 : 1	19.69 : 1

benchmark organizations which do similar social work as WE CARE to assess WE CARE's social impact.

Data Utilized

The data used includes WE CARE client data and other secondary sources. Client data is collected to evaluate the changes in outcomes in the clients after they came to WE CARE. Secondary sources are mainly collected to quantify these outcome changes in terms of monetary value by means of suitable financial proxies. Secondary sources include studies published in research journals, government websites, publicly published statistics and indices.

Two main types of client data were collected:

Survey of WE CARE's clients

First, a mix of face-to-face and phone surveys was done to collect personal information pertaining to the study from clients to help assess the changes in personal outcomes after coming to WE CARE. In most cases, two sets of each relevant indicator were collected to establish these changes; one set would contain the values before coming to WE CARE while the other set would contain the values after coming to WE CARE. Some examples of indicators used include employment status, monthly income, recidivism experience and homelessness. In addition, respondents were asked to rank WE CARE's services and the friends/buddies made through WE CARE among other factors to facilitate the attribution component of the study.

Anonymized Client Data

Second, a set of anonymized client data was extracted from WE CARE's records. The data contains the status of clients, which serves as an indicator of whether they have successfully crossed the 6-month sobriety mark. It also contains data regarding the presence of comorbid conditions in the clients to facilitate a more precise estimate of medical cost savings, as will be explained in a later section. The data was collected for all clients who were newly registered with WE CARE between July 2017 to June 2018. This period was selected as the aim was to include all beneficiaries who successfully crossed the 6-month sobriety mark in 2018. This was only possible for

individuals who registered with WE CARE before June 2018. In addition, since the interest was in determining the benefit created over a year, it was necessary to include a year's worth of new client data, leading to the data start date of July 2017.

Total-Benefit Model

Number of Persons in Recovery

Research has shown that 60-80% of relapses occur within the first six months of treatment[7]. This makes the 6-month mark of particular importance and it has thus been used as a benchmark to calculate the number of lives WE CARE has been able to transform.

Number of lives transformed by WE CARE can be defined as the number of individuals crossing the 6-month sobriety mark in the measurement period (July 2017 to June 2018). For relevant calculations, registration date and case status of clients were extracted from WE CARE's client database (refer section 'Anonymized Client Data').

As WE CARE attends to clients with comorbid conditions (like trauma, depression etc.), the number of lives transformed is calculated separately for those with and without comorbid conditions. This approach ensures accurate representation of the benefits experienced by the two groups, with the group with comorbidity experiencing higher cost savings in terms of medical treatment.

Additionally, separate calculations are performed for the alcohol and drug subgroups in order to account for the differing benefits they may face (for example, cost-savings on drug and alcohol expenditures, where cost-saving with regard to drugs is expected to be higher).

The below table shows the number of lives transformed, which is defined as the number of people crossing the 6-month sobriety mark under each subgroup.

[7] Based on McLellan, Grissom, Brill, Durell, Metzger, & O'Brien's paper, *Private substance abuse treatments: Are some programs more effective than others?* Published in Journal of Substance Abuse Treatment in 1993.

COSTS	
Proportion of WE CARE client with Drug/Alcohol addiction	45%
Funds contributed towards recovery in 2018	S$831,551
Total Funds contributed towards treatment of Drug/Alcohol Addiction	S$375,288
Time Cost of Volunteers across all of We Care's services	S$35,355
Total Cost of Volunteers attributable to Drug/Alcohol groups	S$15,956
Total Cost	S$391,244

Expenditure is measured using 50% of the expenditure incurred in 2017 and 50% of the expenditure incurred in 2018. This timeframe corresponds to the same period over which beneficiaries would have received help from WE CARE in order for them to successfully cross the 6-month sobriety mark in 2018. It is also important to note that the expenditure stated here refers only to the portion that is allocated to clients with Drug/Alcohol addiction, assuming a proportional distribution of costs incurred across various addiction groups.

According to the data compiled by the WE CARE office, the corresponding timeframe (2nd half of 2017 and 1st half of 2018) saw 102 volunteers contributing a total of 2357 hours to the charity. Assuming wages of S$15 per hour, one can estimate the total time cost of these volunteers to be S$35,355.

Hence, summing these two figures gives us S$391,244—which can be interpreted as the total costs incurred to help clients with drug and alcohol addiction.

Results

Given the total costs spent in the time frame considered and the total benefit generated over a 5-year horizon, an SROI ratio of 9.54 can be arrived at. This means that for every dollar donated to WE CARE, the charity's efforts can contribute S$9.54 worth of benefits to the society.

Total Benefit Created	S$3,732,345
Total Cost	S$391,244
Overall Benefit-Cost Ratio	9.54

sobriety of the beneficiaries, this can be done by generating the probabilities that a beneficiary would remain sober in future years given that they have crossed the initial 6-month sobriety mark. These are calculated with reference to a study on abstinence by Dennis, Foss and Scott. To avoid extending the benefits too far into the future, the benefits generated are limited to a maximum time horizon of 5 years.

Also, as the benefits are now being considered over different time periods, future benefits have to be discounted appropriately to obtain its present value for fair comparison against the costs, which are incurred in the present. The returns on the Singapore Savings Bond (SSB) over different time horizons are thus used as the discount rate as investing in these risk-free government-backed bonds would be a reasonable alternative use of money available in the present.

The resulting probabilities, discount rates and benefits generated over time are seen in the table below.

Years of Sobriety since maintaining 6 months sobriety	Probability of experiencing respective year of sobriety	Total Benefit generated in respective year	Applicable Discount Rate	Discounted Total Benefit for respective year
1 Year	0.36	S$1,405,910	2.01%	S$1,378,208
2 Year	0.24	S$927,901	2.07%	S$890,646
3 Year	0.16	S$612,415	2.13%	S$574,891
4 Year	0.13	S$526,677	2.18%	S$483,148
5 Year	0.12	S$452,942	2.24%	S$405,451
			Total Benefit for 5 Years	S$3,732,345

Costs

The costs incurred in providing the benefit come in two forms: First, the expenditure incurred by WE CARE in providing services to the beneficiaries and second, the time cost of volunteers who contribute to WE CARE's activities.

	Drugs	Alcohol
# LIVES TRANSFORMED (Substance abuse only)	48	15
# LIVES TRANSFORMED (Comorbidity)	17	18
TOTAL # LIVES TRANSFORMED	65	33

Outcomes measured

An individual crossing the 6-month sobriety mark would create certain quantifiable monetary outcomes for different stakeholders. These stakeholders have been identified as the individual himself/herself (henceforth, referred to as 'Beneficiary'), the government and the society. The following section describes the outcome for each stakeholder and the methodology to measure the same.

1. Beneficiary

1.1 Reduced Expenditure on Drugs/Alcohol

A sober beneficiary would save money by not consuming drugs/alcohol as he/she was previously used to doing. In order to account for this cost-saving, information on consumption patterns of drug and alcohol addicts is used. The expenditure on drugs and alcohol using these consumption patterns can then be representative of the cost-savings a drug/alcohol addict would enjoy by staying sober.

Reduced Expenditure on Drugs

As per Central Narcotics Bureau's 'Overview of Drug Situation in Singapore in 2017'[8], Methamphetamine (64%) and Heroin (27%) are the most commonly abused drugs. Assuming Meth and Heroin are the only abused drugs, these percentages can be normalized to obtain an approximate 70% Meth usage and 30% Heroin usage in Singapore.

Applying these consumption patterns to WE CARE's population and also taking into account the unit cost, daily units consumed and number of days of consumption per

[8] Based on *An Overview of Singapore's Drug Situation in 2017* by Central Narcotics Bureau in 2018. Source: https://www.cnb.gov.sg/docs/default-source/drug-situation-report-documents/cnb-annual-stats-release-for-2017_12-jun.pdf

week for each drug (as provided by WE CARE's counsellors), one can calculate the expected weekly savings for a drug addict[9]:

Drug Type	Primary Addiction %	Unit Cost	Daily Units Consumed	No. of Days of consumption/Week	Expected Weekly Cost
Meth	70%	S$150.00	2	3	S$632.97
Heroin	30%	S$20.00	4	4	S$94.95
				TOTAL	S$727.91

Multiplying the weekly expenditure by 52 would give S$37851 of savings per annum for a drug addict if he/she remains sober.

Reduced Expenditure on Alcohol

For alcohol addicts, beer is assumed to be the only source of addiction based on information provided by WE CARE's counsellors. Additionally, beer is assumed to be consumed in 2 forms: bottled and canned. Thereupon, as for drug addiction, relevant numbers for beer consumption (provided by WE CARE's counsellor) are used to calculate weekly savings for an alcohol addict if he/she is able to abstain:

Alcohol Type	Primary Addiction %	Unit Cost	Daily Units Consumed	No. of Days of consumption /Week	Expected Weekly Cost
Beer (bottle)	1	S$5.55	7	6	S$233.10
Beer (can)	0	S$2.73	12	6	S$196.80
				TOTAL	S$429.90

[10]

Multiplying the weekly expenditure by 52 gives a S$22355 per year cost-savings for an alcohol addict if he/she remains sober.

1.2 Reduced Expenditure on Treatment (Substance Abuse only)

Drug/alcohol addiction treatment typically involves a detox and counselling. A beneficiary can save on the potential cost of these treatment services if he/she can successfully remain sober because of WE CARE's interventions.

Detox

[9] 1 unit of Meth refers to 0.5 grams and 1 unit of Heroin refers to 1 straw.
[10] 1 unit of beer (bottle) refers to 640 mL and 1 unit of beer (can) refers to 330 mL.

As mentioned above, both layers of deadweight are applied to individual annual benefits that were calculated previously.

The tables below show the deadweight calculated for each benefit category and the indicators used to construct the counterfactual.

Benefit	Deadweight	Counterfactual
All Benefits	25.00%	Percentage of addicts who can attain 6-month sobriety without WE CARE's assistance
All Benefits	26.14%	% of recovery not attributed to WECARE's programs and networks
Final selected Natural Recovery Rate	26.14%	
Improvement in Incomes	73.37%	Percentage of offenders that do not reoffend in Singapore
Reduced Cost of Housing Inmates	73.37%	Percentage of offenders that do not reoffend in Singapore
Reduced Law Enforcement Costs	1.60%	Percentage reduction in annual crime rate
Reduced Legal and Adjudication Costs	1.60%	Percentage reduction in annual crime rate
Reduced Victimisation Costs	1.60%	Percentage reduction in annual crime rate

Total Benefit Post-Deadweight	Natural Recovery Rate	Deadweight	Drugs	Alcohol	Total Across Subgroups
Expenditure on Drugs/Alcohol	26.14%		S$1,817,299	S$544,898	S$2,362,197
Expenditure on Treatment (Substance abuse only)	26.14%		S$187,016	S$58,442	S$245,458
Expenditure on Treatment (Comorbidity)	26.14%		S$165,587	S$175,327	S$340,914
Improvement in Incomes	26.14%	73%	S$219,091	S$111,231	S$330,322
Reduced Cost of Housing Inmates	26.14%	73%	S$280,001	S$142,154	S$422,155
Reduced Law Enforcement Costs	26.14%	2%	S$88,823	S$8,648	S$97,472
Reduced Legal and Adjudication Costs	26.14%	2%	S$23,244	S$2,731	S$25,975
Reduced Victimisation Costs	26.14%	2%	S$53,601	S$27,213	S$80,814

With this, the total post-deadweight benefit is obtained as follows:

	Drug	Alcohol
Benefit per Year per Life Transformed (Substance abuse only)	S$42,082	S$29,256
Benefit per Year per Life Transformed (Comorbidity)	S$47,926	S$35,100
Total Benefit Per Year	S$2,834,661	S$1,070,645

Years of Benefit Experienced (Drop-off) and Discount Rate

With the deadweight-adjusted annual benefit, the total benefit generated over time in future years can be calculated. Since benefits experienced are contingent on the

However, the natural recovery rate may not be an accurate way of discounting the benefits provided by WE CARE, given that the beneficiaries who approach WE CARE are unlikely to find sustained recovery on their own. An alternative deadweight was therefore considered. It was found that 26.14% of the sample respondents attributed their recovery to factors not directly relating to the WE CARE services (including: personal motivation; religious faith; and the support of family and friends) [21]. Thus only 73.86% of the benefit may be attributed to WE CARE's services alone. 26.14% was therefore thought to be a more conservative and accurate deadweight.[21]

2. Proportion of benefits which is not attributable to WE CARE, but to historical economy-wide trends. These trends include percentage of offenders who do not reoffend (applicable to the reduced cost of housing inmates and improvement in incomes) and percentage reduction in annual crime rate (applicable to the reduced law enforcement, legal and adjudication, and victimisation costs) based on historical data.

However, it is acknowledged that these trends might inappropriately include WE CARE's contribution towards the drug and alcohol landscape in Singapore. For example, part of the increased percentage of offenders who do not reoffend over the years is likely to be contributed by WE CARE and should not be simply treated as the counterfactual. Thus, incorporating this second layer of deadweight might possibly result in an under-estimate of WE CARE's social impact. Nonetheless, this gives us the best possible conservative estimate given existing data limitations and will be used for the final calculation. To account for this limitation, a sensitivity analysis will be conducted on this aspect of the deadweight assumptions, which will be discussed in later sections of the report.

[21] Calculation of percentage of recovery not attributed to WE CARE's programs and networks: Attribution analysis is required to determine the percentage of benefits not known through WE CARE including personal motivation, religious faith and the support of family and friends. This is achieved by using reverse scoring on a question which asked respondents to rate the relative importance of various factors in their recovery. 2 options, namely "WE CARE's programs" and "Friends/buddies known through WE CARE", correspond to the impact attributable to WE CARE. Ranking these 2 factors as most important results in 100% attribution whereas ranking them as least important results in the minimum attribution of 0%, corresponding to the minimum score of 3 out of a maximum possible of 11. The average across respondents who have achieved initial 6-month sobriety is found to be 73.86%, making percentage of recovery not attributable to WE CARE equal to 26.14%.

Assuming a basic 1-week detox and 2-week rehabilitation programme at National Addictions Management Service (NAMS), the monthly cost is S$4998. Assuming conservatively that only one such programme is required per year, this translates into an annual cost-saving of $4998 if beneficiary remains sober.

Counselling

For counselling services, one can identify the amount a beneficiary would save by choosing to undergo counselling at WE CARE relative to other organizations by calculating the counterfactual - how much a beneficiary would spend outside of WE CARE. Alternate avenues for treatment include private clinics in Singapore, overseas rehabilitation facilities (classified as 'Private Treatment' jointly), or NAMS. For simplification of analysis, one can narrow down the scope to comparison between the subsidized rates for adult patients at NAMS and WE CARE specifically, given that income groups that WE CARE's beneficiaries belong to would not make them likely to be able to afford an expensive private treatment.

For calculating the expenditure on subsidized counselling services at NAMS, a beneficiary is assumed to take up a basic package constituting 1 each of consultation session, counselling intake and assessment, individual counselling session and family counselling session. The cost of this basic package can be calculated as S$106 based on the below cost grid[11]:

Services		Subsidised Patient Rates
Consultation	First Visit Charge	S$38.00
Counselling	NAMS - Intake & Assessment (First Visit)	S$28.00
	NAMS - Individual Counselling	S$20.00
	NAMS - Family Counselling	S$20.00
TOTAL		S$106.00

Based on WE CARE's counsellors' recommendations, on an annual basis, a person can be assumed to go for a basic package, 6 additional individual counselling sessions (costing S$20 each) and 6 additional family counselling session (costing S$20). This would amount to a total S$346 (=106+120+120) spent at NAMS annually.

[11] Charges based on NAMS website. Source: https://www.nams.sg/our-services/outpatient/Pages/Charges.aspx

As for WE CARE's counselling services, a significant 80% of beneficiaries receive free treatment. As such, by choosing WE CARE (over NAMS for counselling) and being sober because of the intervention of WE CARE, a beneficiary is expected to save S$277 (=346*0.8) per year on counselling.

Altogether, a person availing WE CARE's services is expected to save S$4998 on detox and S$277 on counselling annually if he can remain sober. This translates to an annual cost savings of S$5275 (detox + counselling).

1.3 Reduced Expenditure on Treatment (Comorbidity)

Comorbidity treatment costs more than substance-abuse (only) treatment. This additional cost is because clients with co-occurring disorders are more susceptible to negative outcomes such as Hospitalization, Incarceration, Violence, Homelessness and infectious Disease[12]. Consequently, mental health and substance abuse systems spend most of their resources on high-risk populations such as consumers with co-occurring disorders[13].

According to a study by SAMHSA[14], services for consumers with co-occurring disorders cost nearly twice as much as for consumers with single disorders, while the estimate is thrice as much based on WE CARE's counsellors' experience.

Taking the above points into account, expected savings out of treatment for a beneficiary with comorbid condition can be assumed 2.5 times (average of 2 and 3) as much of a beneficiary with substance-abuse only. This amounts to a S$13187 (2.5

[12] Based on a paper, *Implementing dual diagnosis services for clients with severe mental illness* by Drake et al. Published in The Journal of Lifelong Learning in Psychiatry in 2004. Source: http://ziapartners.com/wp-content/uploads/2011/04/focus-2004-2-impldualdxsvcs.pdf

[13] Based on a paper, *Persons with dual diagnoses of substance abuse and major mental illness: their excess costs of psychiatric care* by Dickey and Azeni. Published in the American Journal of Public Health in 1996. Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1380438/pdf/amjph00518-0063.pdf

[14] Based on a paper, *Integrated treatment for co-occurring disorders: Building Your Program* by the Substance Abuse and Mental Health Administration. Published by U.S. Department of Health and Human Services in 2009. Source: https://store.samhsa.gov/system/files/buildingyourprogram-itc.pdf

Multiplying them by the number of lives transformed in each subgroup will give total benefit created for all WE CARE beneficiaries as follows:

Total Benefit	Drugs	Alcohol	Total Across Subgroups
Expenditure on Drugs/Alcohol	S$2,460,343	S$737,708	S$3,198,051
Expenditure on Treatment (Substance abuse only)	S$253,190	S$79,122	S$332,312
Expenditure on Treatment (Comorbidity)	S$224,179	S$237,366	S$461,545
Improvement in Incomes	S$1,113,840	S$565,488	S$1,679,328
Reduced Cost of Housing Inmates	S$1,423,500	S$722,700	S$2,146,200
Reduced Law Enforcement Costs	S$122,209	S$11,899	S$134,107
Reduced Legal and Adjudication Costs	S$31,980	S$3,758	S$35,737
Reduced Victimisation Costs	S$73,748	S$37,441	S$111,189

Deadweight

To ensure that benefits are not overestimated, it is crucial to consider the proportion of benefits that would occur even without WE CARE's assistance. This proportional benefit coming from elsewhere is termed as the deadweight and there are 2 key considerations while calculating it:

1. A natural recovery rate dead weight amongst drug and alcohol addicts would be applicable to all the benefits that stakeholders might reap. Multiple research studies find the percentage of people who can attain the 6-month sobriety mark without external intervention to be approximately 25% [20]. The benefits of WE CARE's services could thus be discounted using this natural recovery rate.

[20] Natural recovery rate for alcohol-addicted individuals: 24.4% and stable natural recovery rate for alcohol- addicted individuals (lasting 5+ years): 20.6% (Source: Dawson, D., Grant, B., Stinson, F., Chou, P., Huang, B., & Ruan, W. (2005). Recovery from DSM-IV alcohol dependence: United States, 2001-2002. Addiction, 100(3), 281)
24.8% of a sample of incarcerated inmates with substance abuse problems experienced natural recovery prior to their admission into prison (Source: Walters, G. The Natural History of Substance Abuse in an Incarcerated Criminal Population. J. Drug Issues 1996, 26 (Fall), 943–959)

Society is generally the victim of drug and alcohol related crimes. Therefore, society can potentially save on associated victimisation costs through WE CARE's interventions. More specifically, victimisation costs refer to costs incurred by victims of crime as a result of offences attributable to drugs and alcohol.

3.1 Reduced Victimisation Costs

With unavailability of Singapore-based data, the calculation of these costs adopts the same Alaska-based study.

Total victimisation cost divided by number of victims of drug and alcohol related crimes gives per person victimisation cost in Alaska in 2010. The figure when adjusted for inflation, difference in crime rate, and exchange rate, gives Singapore's per person annual cost-saving from victimisation as S$1134.59.

An important assumption while calculating benefit using reduced victimisation costs will be that one addict treated by WE CARE would have caused harm to only one other person in absence of WE CARE. This is done so that expected per person victimisation cost can be multiplied with the number of lives transformed to get total benefit.

Total Benefit Created

The below table summarizes the benefits created per person across the two subgroups:

Per Person Benefit	Drugs	Alcohol
Expenditure on Drugs/Alcohol	S$37,851	S$22,355
Expenditure on Treatment (Substance abuse only)	S$5,275	S$5,275
Expenditure on Treatment (Comorbidity)	S$13,187	S$13,187
Improvement in Incomes	S$17,136	S$17,136
Reduced Cost of Housing Inmates	S$21,900	S$21,900
Reduced Law Enforcement Costs	S$1,880	S$361
Reduced Legal and Adjudication Costs	S$492	S$114
Reduced Victimisation Costs	S$1,135	S$1,135

* 5275) savings for a beneficiary with comorbidity condition.

1.4 Improvement in Income

To calculate the income improvement, one can focus only on the ex-offender population by assuming that in the absence of WE CARE, an ex-offender would recidivate and hence, earn zero income. So, the incremental income for an ex-offender is above this zero-bound. However, for the rest of the population (non-offenders), such an assumption wasn't possible. Also, even comparing wage differentials (before and after coming to WE CARE) wasn't accurate because most service users focus their time on recovery and aren't sufficiently recovered to hold a job.

Therefore, the improvement in income was only calculated for the ex-offender group. It was calculated using the average annual income ex-offenders in the sample data earned after coming to WE CARE. The calculation leads to an average improvement of S$21420. However, since ex-offenders form only 80% of the sample data, expected annual income earned due to reduced recidivism is given as S$17136 (=21420*0.8).

2. Government

WE CARE's treatment helps control recidivism amongst clients, thus helping government by reducing cost of housing inmates. Additionally, sober beneficiaries are better able to take charge of their housing, which translates to a lower monetary burden when it comes to shelter provision by the government. Other government cost-savings include those in terms of law enforcement, and legal and adjudication costs.

2.1 Reduced Cost of Housing Inmates

According to Channel News Asia's It Figures[15], the cost of housing an inmate for a day is $75. Assuming that a person who was incarcerated prior to attending WE CARE would continue to be incarcerated in the absence of WE CARE, S$75 multiplied by the

[15] Based on a video, Prison High by CNA Insider in 2016. Source: https://www.youtube.com/watch?v=rT9BtnQuOQ8&t=0s&list=PLkMf14VQEvTa5qy5QJoVFJS6sWIH63f-_&index=11

sample probability that a person went to jail before coming to WE CARE then gives the expected reduction in cost of housing an inmate per day by the government. In annual terms, this amounts to a total cost-savings of S$21900 (=75*0.8*365) per person successfully treated by WE CARE.

2.2 Reduced Law Enforcement Costs

Law Enforcement Costs refer to the cost of arrests or offenses that did not result in arrests that can be attributed to drug/alcohol abuse. With no availability of Singapore-based data, a study titled "The Economic Costs of Alcohol and Other Drug Abuse in Alaska, 2012 Update[16]" is referred to estimate these costs.

Calculations are done separately for drug and alcohol subgroups.

Reduced Cost of Drug Enforcement Laws

The said study estimated Alaska's total annual cost of drug enforcement laws as US$42.8m in 2010. Using the number of arrests attributed to drug abuse (that is, 8464), the average per person cost is US$5056.71 (= 42.8m /8464). Adjusted for inflation, this figure is US$5663.52 for 2018[17].

To adjust the costs to Singapore's context, the above per person cost is then (a) crime rate and (b) exchange rate adjusted:

(a) Crime Rate Adjustment: Per person annual cost of drug enforcement laws in Alaska is multiplied by the ratio of crime levels in Singapore and Anchorage City (which is Alaska's most dangerous city[18] and hence, ensures a conservative estimation

[16] Based on a report prepared for the Alaska Mental Health Board & Advisory Board on Alcoholism and Drug Abuse. Source: http://dhss.alaska.gov/abada/Documents/pdf/EconomicCostofAlcoholandDrugAbuse2012.pdf
[17] Calculations done using an inflation calculator by the Bureau of Labor Statistics in U.S. Source: https://www.bls.gov/data/inflation_calculator.htm
[18] Based on an article published on KTVA and figures published by the FBI on crime in Alaska. Sources: https://www.ktva.com/story/37361490/alaska-deemed-most-dangerous-state-in-us-in-new-report; https://ucr.fbi.gov/crime-in-the-u.s/2016/crime-in-the-u.s.-2016/tables/table-6/table-6-state-cuts/alaska.xls

approach). The ratio obtained is 0.24 (= 16.12/66.18[19]) and the per person annual cost of drug enforcement laws in Singapore is then US$1,379.51.

(b) Exchange Rate Adjustment: Using exchange rate as of 31 December 2018, per person annual cost of drug enforcement laws in Singapore is S$1,880.13.

Therefore, because of WE CARE's interventions, government can expect to annually save S$1,880.13 via drug enforcement.

Reduced Cost of Alcohol Enforcement Laws

Following the same study from Alaska and the methodology above, per person annual cost of drug enforcement laws in Singapore can be obtained. The only changes include using cost of alcohol enforcement laws and number of arrests attributed to alcohol abuse (instead of drug-specific costs).

Expected cost-savings of government via alcohol enforcement is S$360.57 per person per year.

2.3 Reduced Legal and Adjudication Costs

With unavailability of Singapore-based data, the same Alaska-based study and methodology (as the one used to calculate Law Enforcement Costs) can be adopted to calculate these costs.

2010 Legal and Adjudication Costs in Alaska can be duly adjusted to Singapore's context by accounting for inflation, difference in crime rate, and exchange rate. This gives annual cost-savings from legal and adjudication costs as S$492 per person in the drug subgroup, and S$113.86 per person in the alcohol subgroup.

3. Society

[19] Based on an online comparison of crime between Singapore and Anchorage on Numbeo. Source: https://www.numbeo.com/crime/compare_cities.jsp?country1=Singapore&country2=United+States&city1=Singapore&city2=Anchorage,+AK