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Review Article

Evaluation of the Social Return on Investment (SROI) in Patients with Hepatitis C. The Case of the Mobile Outreach Program (MOP)

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Abstract

The World Drug Report highlights that the prevalence of hepatitis C virus (HCV) is one of the leading causes of cirrhosis and hepatocellular carcinoma globally. This report estimates that HCV is responsible for the annual death of around 700,000 people due to liver disease and is associated with high levels of morbidity and mortality with high health and socio-economic costs. This exploratory study aims to evaluate the socio-economic return provided by HCV treatment of individuals integrated into the MOP developed by the NGO Ares do Pinhal in Portugal. Using the SROI (Social Return on Investment) methodology is estimated that for every euro invested in this program, the return for society is 3,75€. This is a significantly positive SROI value, highlighting the importance of this investment in the creation of monetized value for society, as well as to provide greater well-being to those who need it and to society as a whole.

Background

Drug use is a common issue worldwide and one of the health issues which poses a greater burden on society, both in deaths, healthcare resource utilization, and overall costs to society [1-3]. One of the most pressing health concerns is related to infectious diseases among people who use drugs, namely among people who at least once a lifetime inject drugs (PWID) [4].

Hepatitis C Virus (HCV) is responsible for some 700,000 deaths worldwide and a significant contributing factor to disability [5], with a worldwide increase in prevalence [6] (Lavanchy, 2009) [7]. A 2015 global report from the WHO identified that roughly half of the 12 million PWID had HCV [8], making this a priority. Sharing injecting apparatus between PWID has been identified as one of the causes for such high dissemination of the disease and a particularly high prevalence (97%) as suggested in the literature [9].

These risky behaviors account for 78% of the new HCV infections in Europe.

Treatment for HCV is therefore paramount to reduce the burden of the disease [10]. A serious commitment from most countries was achieved to ensure that treatment is provided to patients, following the availability of novel more efficacious therapeutics [11]. Research shows that early diagnosis and treatment initiation significantly decreases the exacerbation of the disease, which also positively impacts healthcare costs for the National Health System (NHS) – reducing consultations, hospitalizations, medication, and even transplant surgery [12-14].

The yearly expenditure on HCV in Portugal is as high as 71 million €, of which almost 85% corresponds to treatment costs - including hospitalizations and transplants in the most severe clinical presentations. Therefore, prevention, screening, and

early diagnosis are essential to reduce the high economic burden of the disease, which resulted in the development of a national program for HCV treatment [12,13,15].

Recent developments in novel therapies resulted in increased treatment efficacy. Almost 95% of all HCV cases are now resolved with oral direct-acting antivirals (DAAs) in 8-12 weeks, [16]. Since 2014, Portugal has had a reference nationwide program for the eradication of HCV based on these therapeutics [17].

Social Return on investment (SROI)

The present manuscript reports the up-to-date data on the SROI for the Mobile Outreach Program (MOP) program portion devoted to the treatment of HCV. The objective is to compare the financial investment versus the economic return and social well-being of the project [18,19]. This methodology aims to provide a more focused and specific analysis of the ROI for the social sector, accounting for all societal outcomes. The greater the difference between the investment and the outcomes of the project, the higher the SROI. This methodology ensures that the same mechanisms in place in for-profits are used to assess the performance of social sector endeavors, namely monetization of the activities [20]. SROI increases the knowledge of the management processes in place at the organization, facilitating internal and external communication, strategies, management, and accountability, as well as maximizing the social impact of the organization [21]. However, the SROI methodology is still limited to the quality of the data provided and made available to the model [22].

Although this methodology is not frequent in the social sector, some examples have surfaced in the literature. Hubberstey and Rutman [23] reported on an SROI study in the HerWay Home, a service and outreach program for pregnant/parenting women with substance use issues and other complex factors. The results show that for every dollar invested in the program, 4.45 dollars of social value were obtained.

SROI is particularly relevant to consider as recent evidence supports the importance of harm reduction programs in stemming the surge of new cases of HCV worldwide. Estimates suggest that by 2030, risk reduction of transmission in the non-PWID by 80% and increasing the coverage of harm reduction by 40% may prevent 14.1 million infections, while providing patients with direct-acting antivirals (DAAs) may avoid up to 640 thousand deaths from liver cancer or other resulting complications. If a comprehensive approach of screening, diagnosis, prevention, and treatment is fully implemented, it may reduce new infections by 81% and 61% fewer deaths compared to a reference value of 2015 [24].

Other models show similar outcomes in prevalence and deaths. The most recent model prediction [25] compared forecast scenarios for 2045 in which improving testing, treatment, and access to harm reduction individually promoted a decrease in infections between 7 and 34%. Concomitant use of all three strategies would decrease prevalence to 0.2%, which shows that only integrated approaches can achieve the target elimination targets defined by the WHO. Harm reduction is deemed essential in positively impacting prevalence and hospitalizations. The importance of harm reduction is also highlighted in studies in which algorithms for the treatment and management of HCV are developed [26]. Harm reduction should be implemented also in a post-cure context, which if articulated with surveillance for hepatocellular carcinoma in patients with chronic conditions, can lead to better care and a more simplified approach to patients' management by non-specialized physicians.

Case presentation

The Mobile Outreach Program (MOP)

Ares do Pinhal, a Portuguese NGO, has been managing for the last 2 decades a harm reduction MOP - a patient-centered outreach harm reduction program that uses mobile units for medical and psychosocial care in the city of Lisbon focused on people who use drugs and, for whatever reason, do not have access to conventional drug addiction treatment centers or other health and social services - funded by the Lisbon municipality (20%) and the General Directorate for Intervention on Addictive Behaviours and Dependencies (SICAD) (80%) [27]. This population is usually engaged in high-risk behaviors (namely PWID), has physical & mental impairments, and is socially marginalized - The approach is based on proximity and community intervention and supports over 1,200 drug users daily. The MOP manages heroin substitution and harm reduction programs -needle-syringe program and by providing other drug consumption apparatus for users- but also establishes a platform for prevention, screening, and treatment of infectious diseases in PWUD/PWID, as well as psychosocial support. Most users are unable or unwilling to recourse to traditional healthcare services. In 2018 alone, the program screened 1,229 users for HCV.

The MOP has in place several intervention strategies to provide HCV treatment for users in the program. Until 2013, users with a positive result in the HVC screening were referred to the local primary care units. However, this strategy had diminished efficacy since a significant proportion of patients would not follow through or were unable to get the necessary consultations promptly. Only a few patients have received HCV treatment - with interferon and ribavirin combination therapy - but due to the known side effects of the therapeutic, treatment adherence and completion were extremely low.

With the introduction of the DAAs in 2014, patients were referred to the primary care units but accompanied by a complete individual clinical process. This strategy proved again to be unable to attain the desired outcomes, as the process of admission was complex and burdensome for

patients. In 2015, only around 38% of the 348 HCV+ patients were able to get a medical specialty consultation, with less than 19% on a regular consultation schedule. Furthermore, only around 5% reported having completed the treatment [9].

The third strategy began in the last quarter of 2017 and was anchored under an informal collaboration protocol with the Gastroenterology Service, the Analysis Laboratory, and the Hospital Pharmacy of the Centro Hospitalar de Lisboa Norte (CHLN). This collaboration streamlined the process for the users, ensuring consultations, lab work, and other exams. Moreover, if the diagnosis is confirmed, the attending physician will file an online request for the availability of treatment. When approved, the hospital pharmacy would provide the MOP with the treatment. Each day, the patient would receive his HCV treatment at the mobile units of the MOP in a directly observed treatment (DOT) strategy. After treatment completion, the patients would get tested at the CHLN through the blood samples collected at the mobile unit. This intervention resulted in increased treatment adherence and medical specialty appointments, through the reduction in the number of consultations in a hospital setting.

Most recently – since February 2019- and building on the success of the previous intervention, closer integration between the mobile unit and the CHLN was achieved. Instead of taking the patient to the CHLN, a gastroenterologist from the hospital would perform the consultations at the mobile unit during the routine substitution program daily visits. This increased the adherence to consultations from roughly 48% to around 80%. The blood samples collected at the mobile unit are delivered to the hospital; if a patient tests positive for HCV, the treatment would follow the previous intervention steps. If not, a health education protocol is initiated to enhance the best practices in harm reduction.

Methods

The methodology applied here is the case study. According to Yin [28], the case study methodology is considered the most effective method of investigation when one wants to analyze a real and current phenomenon. The case study allows one to describe and explain all the characteristics of the real case in detail, which would not be possible by applying a quantitative investigation [28]. The same author suggests six sources for data collection: documentation, archiving records, interviews, direct observation, participant observation, and physical artifacts. In this research, we have followed Yin [28] recommendation as follow:

Documentation and archiving records

Ares do Pinhal has archived data for the last 20 years on individuals being supported by the project. This includes information on drug use, health behaviors, sociodemographic characterization, and health records;

Interviews

A cross-sectional study was carried out between March and April 2019 on the users attending the program. Randomly selected individuals were invited to participate in a consecutive sampling method until the sample size was achieved. Written informed consent was provided to the participants before enrolment and signed before any study activities were initiated. The study includes a questionnaire to gather self-reported data. Out of an initially planned sample of 100, 99 individuals agreed to participate in the study. The questionnaire contained questions on sociodemographic data, citizenship, professional status, social support, and housing type before and after entering the program. The interviews were done by phone or face-to-face through, by previously trained Ares do Pinhal professionals on the study protocol;

Direct and participant observation

Ares do Pinhal professionals work, daily, with the target group. This allows for continuous direct observation and the identification of behaviors, which is essential in studies focusing on detecting behavioral change.

The purpose of this study is to determine the socioeconomic outcomes for individuals enrolled in the MOP, and outcomes from a societal perspective. For that, the SROI (Social Return on Investment) method was applied, aiming to validate the return on social investment and well-being generated for society [19]. Reference literature refers to SROI, based on traditional cost-benefit analysis and social accounting, which can demonstrate how an organization or social project is able not only to generate social well-being but also financial return, simply by looking at it as an investment, rather than a cost. Brest and Harvey [18] note that SROI evaluates the resources used to implement a social organization's mission, and the more social value that is obtained with fewer resources, the higher the SROI. Scholten, et al. [20] refer to the interest in SROI for the various interested parties (stakeholders) because it is essential to know, with metrics, the impact of the money invested in social projects. However, although it is essential to use the Monetization Principle (assigning a monetary value to the study of social impact), the SROI analysis will not be complete without qualitative information about the impact of the project, which can and should be obtained from a myriad of sources.

According to Nicholls, et al. [21], SROI provides additional value to the calculation of return on social investment by a) facilitating internal and external communication; b) promoting strategic discussion; c) generating new information; d) helping communication with stakeholders, e) enabling more effective decisions and greater clarity in management; f) helping the organization focus on critical impacts and change; g) facilitating the entry of new social investors; h) improving the organization's image, and i) helping organizations maximize their social value.

The SROI methodology does, however, have some limitations. Roux [22] identifies the following: i) in the absence of an effective information system, data collection is difficult, and the cost of implementation is high; ii) sometimes the results are based on assumptions, which can be subjective; iii) when the analysis is not carried out thoroughly, there is a risk of identifying only the direct impacts, ignoring some less obvious ones.

The overall sample considered in the modeling was the 1229 drug users being routinely accompanied by Ares do Pinhal at the Mobile Outreach Program.

Discussion and conclusions

SROI implementation

To calculate the SROI for the hepatitis C virus prevention and treatment of the MOP project we followed the recommendations referenced in the bibliography:

1. The project began by precisely defining the scope of the SROI we wanted to calculate and identifying the stakeholders who could best contribute to a consistent calculation. Thus, a working group was created composed of professionals from Ares do Pinhal and some stakeholders who were considered likely to make important contributions to the project, namely the municipal police, researchers working on SROI, and students interested in this area.

2. The annual cost of the project was quantified considering: 1) the cost of the structure which includes the technical team, collection and delivery of blood samples, support vehicles, and other general expenses (communications, fuel, insurance, and parking meters) and 2) the cost of HCV treatment per individual.

3. The possible benefits (direct gains and/or savings) of the project were identified using different sources, namely the accumulated experience and knowledge of Ares do Pinhal, the technical knowledge of the participating actors, and secondary data available in scientific articles and statistical documents/websites (INE and PORDATA). From the analysis and interpretation of these sources, three classes of benefits to society that are monetizable were identified:

- Benefits resulting from the cessation of consumption and/or reintegration into active life

Each user in the active consumption phase spends, on average, 50€ per day. This expenditure is made without VAT (it does not generate value for society) and the fact that he is habitually unemployed does not promote gains for society either.

The benefit is translated through the stoppage of consumption expenses and the increase in the number of employed users (who will contribute with payment of taxes on work, expenses on legal consumption goods, and payment to social security), savings on social integration income –(SII) (fewer beneficiaries of SII represent saving for the society) and on unemployment benefits.

- **Cost benefits for the NHS (National Health System)**

Based on the history of HCV screening performed in the MOP and the results of the study by Silva, et al. [9], it is estimated, by default, that about 65% of users attending the MOP are HCV+, of which 65% will be HCV RNA + (active hepatitis). Also, about 20% of HCV RNA + users will progress to more serious pathologies, such as cirrhosis and hepatocellular carcinoma, -value consensually accepted by the international scientific community. Since patients are monitored daily in the MOP, prevention, screening, referral to specialized health care, administration of ODT medication, and monitoring of HCV treatment are largely assured.

The benefit translates into a reduction in the number of patients infected with HCV and consequently a decrease in the progression of severe liver disease and its costs. In addition to this individual health gain, HCV treatment in the MOP population decreases the spread of the virus, bringing clear benefits to public health.

- **Crime-level benefits**

We estimate by default that, on average, everyone actively using drugs carries out at least one petty theft per year. Based on information collected from the Municipal Police, the cost of arrest and related administrative process (not considering the cost of going to court and possible imprisonment) is estimated at 366€ per theft. The benefit translates into a reduction in the number of crime-related episodes.

To evaluate the results obtained with the MOP methodology, we have considered a total of 1229 drug users being followed by the project, between 2018 and 2020. Based on health and medical charts data, as well as personal interviews, it was identified that:

- 519 individuals need Hepatitis C treatment.
- 141 have started the Hepatitis C treatment;
- 130 have finalized the process of treatment;
- 7 have disappeared of MOP and treatment;
- 4 have died during the process of treatment;
- 37 individuals were able to start an active life and get a job.

Results

This research aims to estimate the SROI of the project carried out by Ares do Pinhal in the prevention and treatment

of HCV. Up to this stage of the project, it was possible to verify that the SROI methodology allows calculating the monetized impact of this project on society, referring to the sample of users accompanied by Ares do Pinhal. To calculate the exploratory SROI, we estimated the (monetized) costs and benefits of the project.

We also looked for qualitative benefits as suggested by Scholten and collaborators [20].

Costs

The HCV prevention and treatment project developed by Ares do Pinhal had a cost of 900.000€. Structure

The cost of the structure dedicated to this project is 120.000 Euros per year. Considers the technical team, collection, and delivery of blood, support vehicles, and other general expenses.

Treatment

Between 2018 and 2020, Ares do Pinhal monitored the treatment of 130 individuals. The cost of HCV treatment, per individual, is 6.000 euros with a total investment of 780.000€.

Benefits

As mentioned above, three types of monetizable benefits have been identified so far: 1) benefits resulting from the cessation of consumption and/or reintegration into active life; 2) cost reduction for the NHS; 3) benefits in terms of diminished crime rate among users;

Note: besides the monetizable benefits, there are also qualitative benefits for the community that could not be quantified in this work.

We will now monetize each of the benefits:

1) Benefits resulting from the cessation of consumption and reintegration into active life

Each user in the active consumption phase spends, on average, 50€ on drug use per day. This expenditure is made without VAT (it does not generate value for society) and being habitually unemployed does not promote gains for society either.

Regarding spending on consumption, in the 130 individuals treated, the total value of acquisition of drugs for consumption would be 2.372.500€ per year. This amount, since it is spent on the acquisition of illicit substances does not generate VAT. If this budget is not spent on illicit purchases, it is reasonable to assume that this amount will end up being used in the acquisition of consumer goods, subject to VAT. Thus, the VAT collected by society will be 474.500€ (considering an average VAT rate of 20%).

Regarding reintegration into active life, of the 130 individuals treated, 7 managed to achieve autonomous life projects, work, and contribute to society. On average, the age of these individuals is 45, so they can have a contributing life of at least 20 years. As they are individuals who are not very prepared for the labor market, we considered by default a useful contribution life of 10 years and a minimum wage of 600€ / month. Thus, the income earned over the contributory life will be 588,000€. This level of income is not subject to the IRS, pays Social Security (SS) (11%), and generates VAT (average of 20%). Therefore, the employee pays 64.680€ for SS plus 117.600€ in VAT. Also, these 7 individuals no longer receive the SII (180,70€ / month), which translates into a lifetime saving of 182.966€.

2) Cost benefits for the NHS

As noted above, in 2018 1.229 individuals were screened -799 (65%) had HCV+ Ac. Given that, by default, 65% of these 799 users will be HCV RNA +, we estimate the number of MOP individuals in need of treatment to be 519. There is a consensus in the international scientific community that, in the absence of treatment, 20% of these individuals will progress to more complicated pathologies such as cirrhosis and liver cancer. In Portugal, the cost of treatment for these pathologies is estimated at around 100.000 euros.

During the study period, 130 individuals were treated for HCV. If they were not, it was expected that 26 (20%) of these individuals would evolve to cirrhosis or liver cancer, which would mean a cost to the NHS of 2.600.000€. This value corresponds to the savings that the NHS has because these individuals have been treated for HCV.

3) Benefits and/or savings in crime

It is estimated that arresting an individual for petty theft has a cost of 366€. This figure considers the cost of arresting an individual on the street, transportation to the police station, and the related bureaucratic process. Considering, by default, that each treated individual stops committing one petty theft per year, the savings to society are €47,850.

Qualitative benefits for the community

In the values described above the gains for public health are not monetized. However, it is possible to identify, among others, benefits related to limiting the spread of HCV, which translates into fewer cases of HCV RNA+, cirrhosis, and liver cancers. The calculation of this and other important indicators, which could not be worked out for this study, will be presented in a future follow-up study.

MOP's Social Return on Investment (SROI)

Adding up the gains (contribution + savings) for the society of the three identified benefits, we obtain a total value of 3.487.326€. Thus, it is possible to state that the amount of 900.000€ dedicated to this project is not a cost, but an investment. For every €1 invested, society receives 3.87€.

Limitations

- This research is based on a case study, thus, not eligible to generalize the results. However, current results make a very strong case for the importance of the current project as the return for investment obtained is largely positive. Establishing similar analysis for other harm reduction programs across Europe would surely provide a better depiction of the SROI of such projects;
- The results are based on a three-year analysis. Would be recommended to increase the follow-up period and evaluate the continuous behavior of those treated and integrated into society during their lifetime. For that, a project is being presented for funding to allow for retrospective and prospective modeling of such data.

Suggestions for future research

This research subject is highly relevant and actual since provides evidence that Mobile Outreach Programs are profitable for society and should be considered an investment not a cost, contributing, this way, to new knowledge for this discussion. In this sense we may suggest possible future research:

- Identify and monetize more and new benefits obtained by society with HCV prevention and treatment.
- Develop a longitudinal study, seeking to verify the benefits obtained by each treated user throughout his or her life.
- Develop a retrospective analysis of the SROI over the past 30 years in which the project has been working with the target population.

Conclusion

Two research questions were raised at the beginning of this work:

- Is the SROI methodology valid for estimating the benefits of this HCV prevention and treatment program for society?
- Is it possible to monetize the benefits of this program for society and thus justify its relevance?

We believe it is possible to answer both questions positively. Based on the literature review, it was possible to implement the SROI methodology and identify and monetize the benefits for society. By quantifying the benefits in euros and comparing them with the project cost (investment) was possible to estimate the Return on Investment for Society. For every euro invested, the society receives 3.87€ back. When the value received is greater than the value provided, we may state that it is an investment and not a cost -it creates value for society, improving personal well-being and society.

The results obtained are of high relevance for non-profit organizations, funding partners, and society. It demonstrates that it is possible to monetize the mission and justify the investment in non-profit organizations, helps funding partners to justify investments, and enables society to understand that spending money on this type of program is an investment and not a cost.

Other studies have found that improvements in HCV infection control, and the implementation of increased reach of harm reduction services -namely for PWID- that provide broad screening for HCV, resulting in HCV treatment for all patients, are paramount to decreasing the societal burden of HCV. This is of particular value for the comparison with the current project, since harm reduction efforts enforced by Ares do Pinhal provide both education, prevention, screening, and treatment for HCV, as well as psychosocial support that can ultimately lead to an increased value for society on the lifetime horizon of drug users. Also, as suggested by Dietrich and Colleagues [26], if more simplified treatment algorithms are implemented for HCV, and per the routine activities at harm reduction programs, the societal gains can be greatly increased. This was also identified in models performed in the US [25], in which to achieve the hard-to-accomplish objectives set by the WHO for the elimination of HCV in 2030, harm reduction is essential since it directly and positively impacts the prevalence of the disease.

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