

The Benefits of Horticultural Therapy for Prison Populations

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Abstract

Horticultural therapy (HT) is best defined as the use of plants and plant-based activities with a goal of rehabilitation and healing oneself (Rutgers, n.d.). While the benefits have been known for decades through research with war veterans and elderly people in nursing homes, recent studies have been exploring the assets it can provide for prison populations. Prisons in the US are notorious for their bad conditions, including shortages of mental health treatment, high costs, and lack of access to fresh fruits and vegetables for the inmates. If such a thing exists that can provide a solution for all of these problems, then it should be implemented. While the full extent is not known, HT programs have been shown as a potential answer. HT programs have been shown to benefit the mental health of those in prison by decreasing depression and anxiety, as well as promoting openness and a nonjudgmental setting by using plants as a common ground (Lee, 2021; Jiler, 2006; Devine-Wright et al., 2019; Richards & Kafami, 2019). Additionally, to negate any issues in regard to budgeting, HT programs have been shown to be cost effective and pay for themselves within a few years (Jiler, 2006; Holmes & Walkiczek, 2019; Devine-Wright et al., 2019). Lastly, these programs are able to give inmates access to healthy fruits and vegetables that can improve both their mental and physical health (Devine-Wright et al., 2019; Jiler, 2006). Since these benefits have been found with the limited studies that have been done, more effort needs to go into exploring the full benefits of HT programs in prisons and should be implemented more frequently across the US.

The Benefits of Horticultural Therapy for Prison Populations

When you think of the prison system in the US, the first thing that comes to mind for many people is retribution and punishment for the crimes that people committed. This has been the predominant viewpoint for centuries, and it has led to a system full of people struggling with mental health issues from depression to addiction, and lack of access to resources to improve their lives and try to rehabilitate so they don't get stuck in the cycle of reoffending. Many prisons have tried implementing therapy programs, but many nationwide attempts have been rejected and any individual attempts a prison may make are not effective enough to make any significant change (Jiler, 2006). If such a therapy exists that (a) improves the mental health of prison populations, (b) is cost effective for taxpayers, and (c) improves health by providing access to fresh fruits and vegetables, then it should be used in prison populations.

Horticultural therapy (HT), while not a new type of therapy, has not been explored much within prison settings, and the benefits of it could be utilized to improve the living conditions and overall health of inmates. In the past, HT programs were mostly used for elderly patients in nursing homes (Williams, n.d), but recent studies and research, HT programs have been shown to benefit the mental health of people in prisons just as much (Lee, 2021; Jiler, 2006; Devine-Wright et al., 2019; Richards & Kafami, 2019). Not just that, but to negate the problem of budgeting in prisons, HT has been shown to be cost-effective and pay for itself within a few years of starting the program (Jiler, 2006; Holmes & Walkiczek, 2019; Devine-Wright et al., 2019). Even further, the food provided by HT programs can be used to increase the food budget per prisoner and give them access to healthy foods that they may not have access to in the outside world (Devine-Wright et al., 2019; Jiler, 2006). All of these benefits of HT programs are

exactly what is needed for inmates; therefore, it should be implemented more frequently across the US.

Throughout this paper, the problems that face the criminal justice system in the US will become very clear, and HT programs offer an answer to them. I will detail the issues the system faces in depth, including mental health treatment, costs associated with therapy, and lack of access to healthy foods. Then, I will explain how HT programs can provide solutions to these problems, from the mental health aspects, to the cost effectiveness, to supplying fresh foods for prisons. By showing all these solutions, I will show how beneficial HT programs can be for prison populations.

Current State of Affairs in the US Prison System

The United States currently has more known prisoners than any country in the world, with a rate of 629 prisoners per 100,000 people (Fair & Walmsley, 2021). To put this into perspective, more than half (53%) of countries and territories across the world have a rate of less than 150 prisoners per 100,000 people (Fair & Walmsley, 2021). Considering we have such a high number of incarcerated people, one would think that a system is in place to make sure they are treated right and get the care they need during the duration of their punishment so they can go back into society and hopefully not return to prison, but the opposite is actually the case. In prison populations in the US, there are deep rooted mental health issues, a challenge of finding therapies that are cost effective and easy to implement, and not a lot of healthy food options, leaving inmates stuck in a cycle of recidivism they don't have the resources to break.

Mental Health Issues in Prisons

Mental health problems are ubiquitous among the incarcerated. The frequency of these mental health issues in people in prison and jail are more than three times that of in the general

population (Bronson & Berzofsky, 2017). It has been repeatedly shown that those with a history of incarceration face a much greater risk of developing severe depression and mood disorders, as well as reporting greater life dissatisfaction as compared to the general population (Bartholomaeus & Strelan, 2021; Bronson & Berzofsky, 2017; Reingle Gonzalez & Connell, 2014). A study done by Bronson and Berzofsky (2017) found that 14% of state and federal prisoners and 26% of jail inmates reported experiences that they showed signs of serious psychological distress, including nervousness, hopelessness, restlessness, and depression. Of those that were told they had a mental health disorder in the past, the most common was major depressive disorder, followed by bipolar disorder, an anxiety disorder, post-traumatic stress disorder (PTSD), and lastly schizophrenia and other psychotic disorders. Similar results were replicated by Reingle Gonzalez and Connell (2014).

Considering mental health seems to be such a dilemma in prisons, services to combat these issues should be more prevalent than they currently are. According to Bronson and Berzofsky (2017), only 54% of prisoners and 35% of jail inmates who met the threshold for serious psychological distress received mental health treatment after admission to their current facility. Findings by Reingle Gonzalez and Connell (2014) show similar numbers, with only 52% in federal prisons and 42% in state prisons receiving medication during their current sentence. While these numbers seem low in themselves, the actual numbers may be much lower due to the fact that many prisoners are undiagnosed. In order to save costs related to health care and pharmacotherapy, many administrators in prisons have an incentive to keep mental health diagnoses low (Reingle Gonzalez & Connell, 2014). Moreover, it was also noted that many symptoms of the most common mental illness in prison, depression, are “to be expected” when an offender first enters prison, so staff may not think much of it and not recognize the presence

of a mental illness. So while the numbers that are shown to us in studies are relatively accurate, they likely do not show the whole scale of the issue.

The Costs of Mental Health Treatment

Considering how many inmates struggle with mental health issues while incarcerated, mental health services need to be available to them so they can rehabilitate and continue with their lives, but the issue they face is the lack of treatments available to them due to the costs. One of the reasons these prices were driven so high was by the deinstitutionalization that occurred in the 1960s with the introduction of the Community Mental Health Act of 1963 (Venable, 2021). The idea was that since medications were now more widely available, people don't need to live in facilities anymore and could instead go to smaller community facilities when in a crisis, but what was not considered was the cost of these medications and the funding needed to keep the community centers running. This has resulted in roughly half of those living with serious mental illnesses not being able to afford any sort of treatment. When they are not treated, it can result in criminal behavior, making jails and prisons, such as the Los Angeles County Jail and Riker's Island, the biggest mental institutions in the US today.

While the cost varies by state, it costs \$5720 on average per inmate to provide health care services, including mental health and addiction treatment (McKillop, 2017). According to Kinsella (2004), taxpayers spend \$15 billion annually to treat inmates with psychiatric disorders. This study also found that it costs twice as much to incarcerate individuals with psychiatric disorders as compared to community treatment programs, with on average \$60 per day for the community treatment programs and \$137 per day in prison. A point brought up by Venable (2021) is that the funds set aside for prisons are simply going towards just housing inmates rather than treating them. When inmates don't receive treatment, their behavior is not going to change,

and the prison setting can just aggravate any existing symptoms. Inmates with mental health issues are not as likely to be let out on good behavior, and bad behavior can land them an even longer sentence, further costing the prison system. Moreover, if they don't receive treatment while incarcerated, they're going to be released into the same environmental conditions that lead to them being arrested in the first place, making recidivism highly likely and increasing costs even further.

Lack of Access to Fresh Fruits and Vegetables

Having access to fresh fruits and vegetables is something that most of us probably take for granted, but that same access is not available to people who are incarcerated. Across the United States there is no set standard for how inmates are to be fed, so the rules come from a tangled mess of state and local policies mixed in with past court decisions (Incarcerated Workers Organizing Committee and Research Action Cooperative (IWOCRAC), 2018). This lack of regulation, along with the fact that most prisons are privately owned, staff can get away with feeding inmates the bare minimum, starving them of essential nutrients provided by fruits and vegetables. Research by IWOCRAC (2018) revealed that 40% of inmates were only served fresh fruit or vegetables "once in a while" or "never". Research done by Impact Justice (2020) found these numbers were even worse, with 62.2% rarely or never having access to fresh vegetables and 54.8% rarely or never having access to fresh fruit. This issue extends to normal meals as well, with 65% of inmates reporting their food made them sick and 66% saying they were served food, "not intended for humans, food with bugs, or moldy/spoiled food" (IWOCRAC, 2018). The same results were found by Impact Justice (2020), and they went on to report that, "Our surveys and interviews document accounts of weevils in grits, rocks in turnip greens, maggots in meals, a rat tail buried in one day's entrée, and oatmeal ladled up with human hair, pieces of

metal, or cockroaches.” This has all been made possible due to the lack of rules and regulations regarding food and nutrition. It has been argued in the past that this lack of good nutritious food is in violation of the 8th amendment, which protects against cruel and unusual punishment, however the argument has never been successful because it’s near impossible to prove the lack of edible food was deliberate on the part of the staff (IWOCRAC, 2018). This situation has only gotten worse since the beginning of the COVID-19 pandemic. There have been reports of kitchen staff being told to continue making food while experiencing symptoms, as well as inmates having to stay in their cells rather than eating in common areas, which limits access to hot and fresh food (Impact Justice, 2020). In some states like Ohio, meals were reduced from three to two per day, and in states like Florida and Georgia, hot meals were replaced with sandwiches (Impact Justice, 2020). Reports coming from a Texas prison stated that the food they received came already cold and mushy in paper bags, and the only the only green they could see was in the hot dogs (Impact Justice, 2020).

Coping with the transition to prison and this new diet is hard enough already, but a poor diet makes this even more difficult. Meals packed full of carbohydrates have been reported to increase aggression in offenders, as well as triggering “emotional upheaval, hostility, anger, and hatred for prison staff” (Impact Justice, 2020). For inmates struggling with substance abuse and trying to get clean, the diet full of sweets and snacks can trigger cravings and miss the opportunity to supplement recovery with nutrient-dense and fiber-rich food (Impact Justice, 2020). An additional study by Oftedal et al. (2020) looked at the potential link between what they defined as core foods (fruits, vegetables, poultry, red meat, and breads) and depressive symptoms. They found a small but significant link between a lack of these core foods and higher depressive symptoms scores in the general population. With the conditions that the incarcerated

have to live in, it could easily exacerbate these numbers, leading to even higher depressive symptom scores. With all of these issues pertaining to the general lack of resources in prisons, HT programs may provide a solution to all of them.

An Introduction to Horticultural Therapy

Horticultural therapy (HT) has been defined as the use of plants and plant-based activities with a goal of rehabilitation and healing oneself (Rutgers, n.d.). According to the Williams (n.d.) from the American Horticultural Therapy Association, the benefits of HT were first documented in the 19th century by Dr. Benjamin Rush, but really took off in the 1940s and 1950s, where it was used to help treat war veterans. Currently, HT programs are commonly used in nursing homes to help elderly patients with their mental and physical health, as well as some new studies detailing potentially huge benefits it has in prison populations (Williams, n.d.).

HT programs are performed differently in different studies, but they all have the same goal; for patients to achieve some form of treatment for their mental health through plants and gardening. For example, the HT done in a study by Lee et al. (2021) involved 12 weeks of therapy with a focus on improving depression, anger, self-esteem, and life satisfaction. They drew analogies between the life cycle of a plant and that of a human, showing how nourishing the plant is like nourishing yourself throughout your lifetime, and integrating the person's experiences and life events into the plant life cycle. Showing how these events can affect the plant can get patients to see the affect they might not even realize has taken over their own life. In the HT study done by Richards and Kafami (1999), they measured vulnerability and resistance to addiction in the form of tension, distress, behavior control, and self-esteem. They took a similar approach to Lee et al. and used the plants to represent the patients, as an extension of themselves. They also included an emphasis on trying to teach inmates alternatives to criminal

behavior by showing them what hard work on their plants can do and how it can be translated to their lives outside of prisons. The HT program used by Jiler (2006) at Rikers prison in New York City is focused on open discussions and being able to talk in the open without the confines of a traditional therapy. The garden provided a common ground that everyone could come to and talk about, and in the process of gardening people can open up about their experiences. Each of these approaches is different, yet each has had a successful result and has been a serious benefit to the inmates taking part in the programs.

Mental Health Benefits of Horticultural Therapy

One of the biggest points for concern within the US prison system is the prevalence of issues regarding mental health treatment. Such a large percentage of inmates have been diagnosed with a mental disorder, and the prison system has done very little to address their needs through medication and therapy, as well as the general setting of prisons and jails not being beneficial to anyone's mental health. With problems like depression and anxiety running rampant inside prisons, steps need to be taken to try to help these people heal and rehabilitate. HT has been shown to benefit inmates' mental health by reducing depression and anxiety and increasing self-esteem and life satisfaction (Lee, 2021; Jiler, 2006; Devine-Wright, 2019; Richards, 2019).

One of the most recent and influential studies done that demonstrates the benefits of HT for inmates was done by Lee et. al (2021). They did a case study on five inmates and measured their levels of depression, self-esteem, and life satisfaction before and after a 12-week HT program. They were taught life skills such as responsibility, accountability, organization, and work ethics along with the things they learned about gardening, including sowing seeds, transplanting plants to pot and garden plots, and developing gardens. At the end of their study,

the found that not only did depression and anxiety scores decrease, but self-esteem and life satisfaction scores increased. These scores were reflected in the inmates active and willing participation, as well as applying any new information they learned to their daily prison routine. The results found in this study were supported by Devine-Wright et al. (2019) and their study involving HT in English and Welsh prisons. They found that their HT program reduced incidences of violence, suicide, self-harm, and poor mental health among prisoners, as well as contribute to the creation of environments that are safe, secure, and supportive.

A very in depth look into a HT program in action was done by James Jiler in his book *Doing Time in the Garden: Life Lessons Through Prison Horticulture* (2006). He detailed what the HT program at Riker's Prison in New York is like, and because he had run the program for eight years at the time of writing this book, he has a variety of real-life stories combined with his own experience working with the inmates there. He stated that the goal of the program he runs is to "provide prisoners with job and life skills, some scientific knowledge and on-going therapy working with plants and animals in the hope they can redirect their lives through meaningful work," as well as breaking the cycle of recidivism (p. 17). The program he runs is very informal and he lets the therapy go wherever the conversation flows in order to get people to open up and talk about themselves. He emphasized the importance of a non-judgmental setting where inmates can be free to talk about their past and can relate their lives to the life cycle of a plant as a form of healing. One thing that he made very clear throughout the book was the difference between prison gardens and HT programs. A lot of prisons have gardens on their grounds where inmates go and harvest vegetables, but most of them miss the therapeutic aspect and constitute "work details". HT programs work on therapy through plants and gardening that inmates can actually enjoy rather than it being a type of unpaid labor.

Another mental illness that many inmates struggle with is addiction. Many don't view it as a real mental illness, so treatment can be minimal, especially if it's what led to the person being incarcerated in the first place. Richards and Kafami (1999) looked at the role that HT can play in the addiction recovery process, specifically on their vulnerability to addiction and resistance to addiction. When they started their program, they noticed the same thing that Jiler (2006) did, and the participants who were initially quieter were much more willing to open up and talk about their experiences when the conversations centered around plant propagation and organic gardening. Based on the results of their study, they found that overall, all inmates who fully completed the program had decreased emotional distress and decreased psychological factors. They also found a significant decrease in inmates' vulnerability to addiction, which includes the psychological factors of addiction, and a slightly smaller but still significant increase in resistance to addiction, which includes the behavioral components to addiction. This shows that HT programs can be used to treat more than just anxiety and depression, and they are beneficial to any type of mental illness.

Cost Effectiveness of Horticultural Therapy

Therapy is expensive. There's no doubt to that, and not all prisons have the funding available to run extensive therapy programs or employ dozens of therapists to help those with mental illnesses. HT has been shown to be a cost-effective therapy to have in prisons, both in terms of producing food and in reducing rates of recidivism (Jiler, 2006; Holmes & Walkiczek, 2019; Devine-Wright, 2019). With all that HT programs provides, it can offset any costs associated with the need for equipment and therapists, as well as reduce the costs associated with treating inmates with mental illnesses.

One of the most obvious cost benefits to HT is that it can provide fresh fruits, vegetables, and herbs for prisons. Devine-Wright et al. (2019) did a study in England and Wales, and they found that prisons there spend £15 million annually on prison food with a budget of £2 per person. These numbers are similar with prisons in the US. While they differ per state, they all hover around the \$2-\$3 range, for example \$2.32 per prisoner in Florida and \$2.45 per prisoner in California (Wagner, 2003, p. 29). Since fresh fruits and vegetables are more expensive than your typical prison foods that you can buy in bulk, being able to grow it on site would increase the value of the food that prisoners receive, without increasing the budget that prisons must spend on food. The cost benefit can be for people outside of prisons as well. As mentioned previously, many inmates who get released return to the poor economic conditions that put them in prison in the first place. However, with the work done by Jiler (2006) at Rikers prison in New York City, any excess food grown in their gardens gets distributed to soup kitchens and homeless shelters in Manhattan. This food could potentially be distributed to those trying to break the cycle of recidivism outside of prisons. Additionally, inmates can use the knowledge they've gained from the HT programs to grow their own food once they get released. Since many people who get released from prison struggle financially, being able to provide for themselves is another skill that will save them money in the long run. As mentioned previously, HT programs must make it very clear that their purpose is for rehabilitation and mental health treatment and not as a front for free labor. Inmates growing the food serves a purpose, to relate themselves to the plant and to learn that there are other answers than crime, the fact that it does provide food is just an additional benefit.

A second cost benefit is that HT has been shown to reduce recidivism rates in inmates that complete the program (Jiler, 2006; Holmes & Walkiczek, 2019). Jiler (2006) stated the

situation quite concisely, stating that, “Inmates, unless they are serving life-without-parole sentences, are eventually released, and many return to the same economic and social conditions that led to their incarceration in the first place.” It’s a repetitive cycle of poor life conditions, leading to arrest, and then are released just to be arrested again. A study done by Holmes and Walkiczek (2019) found that from 2005-2010, 67.8% of prisoners reoffended within 3 years of their release, and 76.6% reoffended within five years, which are horrible numbers and show that cycle. However, one thing that can potentially break this vicious cycle is HT programs. During a study comparing HT programs to non-HT programs to no therapy at all, the results showed that those receiving no therapy had a 100% recidivism rate, those that received a non-HT type of therapy had a 14.1% recidivism rate, and the lowest was those that were in a HT program, with only a 5.4% rate of recidivism (Holmes & Walkiczek, 2019). By implementing HT programs and reducing rates of recidivism, prisons across the US can save money when it comes to housing inmates. The cost on average across the US of housing a single inmate annually is roughly \$31000 (Holmes & Walkiczek, 2019), and in areas with more crime like New York City, taxpayers have to pay almost \$64000 annually to prosecute, defend, and house each inmate (Jiler, 2006, p. 27). By keeping these people from reoffending and keeping them out of prison, it drastically reduces the cost that we as taxpayers have to provide each year. Not only does HT have a monetary benefit for taxpayers, but with the skills it provides it can further reduce recidivism rates and costs even more. It can provide work skills like pest management, turf management, tree care, landscaping, and plant propagation that can provide jobs in the outside world, but the therapy aspect also provides coping mechanisms and outlets for anger and stress through plants (Jiler, 2006). All these skills can be used once released, potentially providing jobs

in addition to the therapeutic benefits, therefore reducing recidivism rates and the costs associated with it even further.

Access to Fresh Fruits and Vegetables

In addition to the cost benefits that having fresh fruits and vegetables provides, that access can also improve the overall health and well-being of prisoners by providing essential vitamins and nutrients they otherwise would not get. Fresh fruits and vegetables are an essential part of a person's diet. They are primary sources of minerals, dietary fibers, phytochemicals, and vitamins such as C, A, B1, B6, B9, and E (Dias, 2012). Having a low intake of vegetables can lead to heart disease, stroke, cardiovascular diseases, and even death (Dias, 2012). Prisons are so starved of these foods that have massive health benefits, and HT programs are one way that they can be provided.

Many prisoners come from a background where they potentially already had limited access to fresh foods, so prisons provide a unique opportunity to teach the benefits of eating healthy and get people's overall health back to a better state. In a study done by Devine-Wright et al. (2019), their Greener on the Outside for Prisons (GOOP) program allows participants to cook and eat what they've grown themselves, including beetroots, cucumbers, tomatoes, peppers, chilies, and lettuce. They found that the main benefits of their program were teaching inmates how to eat more healthily, both while in prison and once they get released. In a similar situation at a prison in Massachusetts, the food they grow in their gardens provides the prison with most of its fresh produce, and the prisoners involved in their HT program have friendly competitions to see who has the best tasting or largest vegetable (Jiler, 2006). Everything done in these programs makes it more interesting than a traditional therapy, and the added benefit of providing food can

teach inmates not only how to grow it on their own, but also all the benefits of having fruits and vegetables as a main part of their diets.

There has been a little bit more of a push in recent years to get better foods to prisoners, with initiatives like the Incarcerated Workers Organizing Committee and Research Action Cooperative, Impact Justice, and more that have been able to go into detail about how bad the food situation is. The reports that they have released spell out exactly what conditions inmates have been living in, but their research is not reaching a wide enough audience to cause nationwide change. One of the most successful pushes we've seen for healthier foods in the country is in schools, with things like MyPlate and initiatives by Michelle Obama changing the way kids eat at school for the better. If we can put a massive effort to change what kids eat at schools, then the same effort should be put into getting access to better foods in prisons as well. HT programs have not been explored enough for prison populations and can have potentially huge benefits for everyone, from the prisoners themselves to the public paying taxes to keep these people incarcerated.

Limitations

One potential limitation of HT programs is that it's something that takes up a decent amount of space. Whereas other types of therapy can be done in a classroom-sized space, for HT programs you need room for garden plots, walkways, potentially a greenhouse if the prison is in a colder climate, and more that just takes up space. The problem is that prison landscapes are empty for a purpose- guards need sightlines to be able to see if there's anyone escaping or someone trying to approach the prison, and having gardens and trees can obscure those sightlines, creating a security issue (Jiler, 2006). A potential solution to this issue could be found in repurposing some of the outdoor spaces already in the prison that were already in existence.

Many prisons are built with some sort of space already meant for small gardens that are frequently neglected, so it is possible to take those and turn them into spaces for HT programs. Additionally, Devine-Wright et al. (2019) pointed out that many new prisons are being built to incorporate some kind of green area since it's been shown to have so many benefits. Not only this, but inmates can also be brought offsite to go to a gardening area that additionally may already have all the tools needed to start any garden plots, but that also requires additional funds for transportation and guards, which can also be potentially offset by the food produced.

Another potential limitation is the cost of starting a HT program. Not only is there a cost associated with the tools and materials needed to start a garden, but there could potentially be an additional cost associated with any extra guards needed to keep the gardens secure. Costs like this may initially make prison administrators hesitant to spend the money. However, many large commercial nurseries will donate any plants they have that are difficult to sell or are already damaged, as well as woodchips for mulch, leaving them to inmates to try to cultivate in their gardens (Jiler, 2006). At the garden at Rikers, they receive over \$15000 worth of plants and materials annually that are donated from nurseries around the city. The gazebo that they built on their grounds was made entirely of donated materials or materials that washed up on the shore of the island. As for the cost of additional guards, that cost can be offset by the food the gardens provide, as well as from the overall decrease in costs associated with recidivism, which should leave plenty to supply salaries for additional guards.

Conclusion

If you think back to the social justice movements that have been common in the US over the past couple of years, you can see that societies views towards the incarcerated are changing. There are more fights for decriminalization of certain drugs, restoring some rights of offenders

once they have finished their terms, and more of a focus on rehabilitation than retribution. Inmates are people too, and if such a therapy exists that allows them to learn skills while rehabilitating inside the confines of a prison, as well as reduce the costs of the criminal justice system, especially those associated with recidivism, then it should be implemented more frequently across the US. HT programs have been shown to include all of these assets while providing that therapeutic element that so many people are desperate to get, yet cannot due to their circumstances outside of prisons. With more and more reports coming out detailing how horrible the experiences that many prisoners go through, from issues with mental health treatment to not even having access to basic foods that provide essential nutrients, it's disgraceful that not much has been done. More studies need to be done exploring these potential benefits of HT programs in prisons, and if they are as successful as past studies have been, there needs to be more of an effort to get them implemented more frequently nationwide.

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