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Published in:
Health Environments Research and Design Journal

DOI:
[10.1177/19375867241250318](https://doi.org/10.1177/19375867241250318)

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Recommended citation(APA):
Carroll, C., McCray, S., & Utter, J. (2024). Feasibility of a Hospital-Based Kitchen Garden. *Health Environments Research and Design Journal*, 1-9. Advance online publication. <https://doi.org/10.1177/19375867241250318>

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Health Environments Research
& Design Journal

1-9

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DOI: 10.1177/19375867241250318

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Abstract

Aim: To explore the chef's experience with a newly implemented indoor hospital-based kitchen garden designed to supplement herbs ordered for patient meals and improve staff engagement. **Background:** Hospital-based therapeutic and kitchen gardens have emerged as effective health-promoting tools in hospital healthcare environments. They promote emotional, mental, and physical well-being for patients, visitors, and staff. However, formal evaluations are limited, and studies focusing on indoor hospital kitchen gardens are noticeably absent in the literature. **Methods:** Qualitative evaluation of a hospital-based kitchen garden. Open-ended interviews were conducted approximately 6 months after garden implementation and explored key informants ($n = 6$) overall experience, engagement with the garden, perceived benefits, and opportunities for improvement. Interview data was analyzed using a thematic approach. **Results:** The implementation of the kitchen gardens was met with overall acceptance among staff. However, the project's feasibility faced challenges related to local food service leadership, communication, and certain aspects of the garden setup. Despite these obstacles, the gardens contributed positively to the quality of meals by including fresh herbs and fostering greater staff engagement. **Conclusions:** The chefs viewed the concept of the hospital-based kitchen garden favorably, noting that it closely aligned with their mission of providing nutritious meals to patients. However, consideration of the broader issues facing hospital food services may be required to seamlessly integrate this task into the kitchen staff's daily routine. Further research is warranted to investigate the effective implementation and feasibility of indoor kitchen gardens in hospitals and their impact on patient menus, food service staff, and the workforce.

Keywords

gardens, healthcare, evaluation, health promotion, hospital

Introduction

Chronic diseases and mental health conditions pose significant challenges to individuals, healthcare systems, and societies (Daré et al., 2019; Gilchrist et al., 2015). The complexity of these public health concerns necessitates multifaceted solutions spanning healthcare, policy, and the community (Lee et al., 2013). One solution

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involves a shift toward greater emphasis on health promotion within hospitals and healthcare settings (Lee et al., 2013). This shift aims to maximize the health benefits for all patients, visitors, staff, and the surrounding community it serves (Lee et al., 2013).

Therapeutic hospital gardens have emerged as an effective health-promoting tool in healthcare environments (Nieberler-Walker et al., 2023). These evidenced-based designed spaces incorporate various plant species and textured materials that stimulate the senses while ensuring accessibility for individuals with varying mobility levels (Knezevic et al., 2016; Nieberler-Walker et al., 2023). The primary goal of these gardens is to promote emotional, mental, and physical well-being for patients, visitors, and staff (Knezevic et al., 2016; Nieberler-Walker et al., 2023).

Research has demonstrated that therapeutic gardens are associated with faster recovery rates (Nieberler-Walker et al., 2023), stress reduction (Lehmann et al., 2018), increased consumption of fruits and vegetables (Veldheer et al., 2020), and improved cognitive and physical function in patients (Attwell et al., 2019). Moreover, therapeutic gardens offer a reprieve from caregiver duties and the sterile clinical environment for visitors (Ulrich et al., 2020) while contributing to work satisfaction and helping mitigate symptoms of burnout for staff (Carroll et al., 2023; Cordoza et al., 2018).

A noteworthy and innovative extension of this concept is the integration of hospital-based kitchen gardens (Knezevic et al., 2016). These gardens, strategically implemented into hospital facility rooftops, community gardens, and courtyards, provide fresh, locally sourced ingredients for patient meals and serve as platforms to engage staff and promote sustainable food practices (George et al., 2015; Knezevic et al., 2016; Moore et al., 2023; Musicus et al., 2019). Their implementation represents another tangible step toward prioritizing health promotion and enhancing the overall well-being of patients, staff, and the surrounding community (Knezevic et al., 2016).

Despite the global interest and increasing implementation of hospital-based kitchen gardens, formal evaluations are limited (George

et al., 2015; Moore et al., 2023; Musicus et al., 2019; Veldheer et al., 2020), and studies focusing on indoor hospital kitchen gardens are hard to find in the literature. The current study aims to fill this gap by exploring chefs' experiences with a newly implemented indoor hospital-based kitchen herb garden designed to supplement stock ordered for patient meals and enhance kitchen employee engagement. By addressing this under-explored area, the study offers unique insights into the challenges and benefits associated with indoor hospital kitchen gardens, contributing valuable knowledge to the evolving landscape of healthcare innovations.

Materials and Methods

Study Design

The current study is a qualitative evaluation of the Mater Hospital's edible kitchen garden project that launched in August 2022. This project aimed to assess the feasibility and impact of implementing a hospital-based indoor kitchen herb garden designed to add to herb stock ordered to provide patient meals and improve employee engagement and well-being. The study also seeks to identify improvement opportunities and provide insight into the effective implementation of similar projects in healthcare settings. The Mater Misericordiae Ltd Ethics Committee reviewed and approved the research, assessing the ethical impact as low and negligible.

Setting

The kitchen gardens were implemented at the Mater Hospital, South Brisbane 880-bed metropolitan hospital, providing specialized services to over a million patients annually. The Mater Hospital is known for its innovation with food. It is the first Australian hospital to implement a hospital room service food service model (McCray, Maunder, Barsha, et al., 2018). It is now one of the first Australian hospitals to trial a hospital-based indoor kitchen garden. The cook-fresh on-demand room service menu prioritizes fresh fruits, vegetables, herbs, and locally grown produce.

Garden Design

Six small raised garden beds (1.64 feet by 3.28 feet) with canopies and self-watering capabilities, fitted with light-emitting diodes, were allocated to the kitchen chefs to grow a range of culinary greens and micro herbs (Vegepod, 2003). The indoor garden was located inside the kitchen at Mater Hospital in a dedicated, cordoned-off area away from direct food preparation areas. The placement of the kitchen gardens indoors ensured easy access for chefs but meant limited access by hospital personnel, patients, visitors, and additional kitchen staff. To ensure food safety, no pesticides were used, and harvested produce was thoroughly washed with a food-grade sanitizer before use in patient meals. All chefs had access to water and gardening materials and tools and were responsible for the care of the garden (e.g., planting seeds, watering, pruning, weeding, and harvesting). The gardens were consistently included as a standard agenda item in the Dietitian and Foodservices senior team's fortnightly menu meetings. This allowed for ongoing discussions regarding any issues, barriers, or assistance required concerning matters.

Participants

The research team and the executive chef identified interviewees who had been actively involved in setting up and caring for the gardens or had interactions with fellow chefs regarding the gardens. Snowball sampling was used to capture other key informants identified during interviews. Written informed consent was obtained from participants before interviews were conducted.

Measures

The first author conducted semi-structured interviews with chefs approximately 6 months after implementing the gardening project. During the interviews, chefs were asked to comment and expand upon their (1) overall experience, (2) engagement with the garden, (3) any perceived benefits, and (4) opportunities for improvement.

Analysis

All interview data were thematically analyzed using a five-step qualitative descriptive approach involving (1) data familiarization, (2) generating codes, (3) generating themes, (4) reviewing themes, and (5) defining and naming themes (Sandelowski, 2000). Interviews were recorded, de-identified, transcribed verbatim (via Microsoft Word), and checked for accuracy by multiple researchers. Initially, data were deductively coded using the capacity-building conceptual framework (Baillie et al., 2009) and the community gardens and well-being model (Egli et al., 2016). Codes were also generated inductively during the line-by-line analysis. All the transcripts were independently analyzed by the first author and two researchers independent from the study and cross-checked for accuracy, consistency, and validity. After multiple readings, patterns were identified, and themes were developed. Exemplar quotes were selected to illustrate the data within each developed theme and presented in-text. The generation of codes and themes was completed using Nvivo Software (Version 12, QSR International, Melbourne, Australia, 2018).

Results

Six chefs completed the semi-structured interviews. The overarching themes from the qualitative analysis related to acceptability, feasibility challenges, and potential impact (Table 1.).

Acceptability of Kitchen Garden

Following implementation, the kitchen gardens drew mixed reactions: "Some people are very positive about it. Others are not as positive." All key informants expressed enthusiasm for the concept, with most describing the herb gardens as:

"a great" or "good idea."

They appreciated the potential benefits, such as staff engagement and the opportunity to incorporate homegrown ingredients into patient meals, which added value to the project. One key informant even expressed a desire to see the project expanded to a larger scale: "I would be very happy to take it to a bigger scale." However, others were

Table 1. Visual Representation of the Key Themes Identified During Key Informant Interviews.

Theme/Subthemes	Exemplar Quote	Suggested Strategy
Theme 1: Acceptability	<p>“It looks very good. Good idea!”</p> <p>“I think, it’s a good idea. And I think it’s a valuable asset.”</p> <p>“I mean, highlight was initially when it first started, we were really happy because this is the first time, we were doing something like that.”</p>	
Theme 2: Feasibility challenges		
Subtheme 1: Management, leadership, and communication	<p>“It’s like empty. And I’m not sure who is supposed to bring the seed or any plant or anything.”</p> <p>“I think it’s a valuable asset, but I just think in our environment it’s very poorly planned.”</p> <p>“They were following that roster (referring to another garden project), so I mean, that’s a better way to do it. I mean, so everyone knows that today is Monday is my job to water it and all that so it’s pretty easy. Rather than for one person to do all this stuff every day”</p>	Structured roster with clearly defined roles and responsibilities or employ volunteers to care for the gardens.
Subtheme 2: Garden setup	<p>“We had a fair few flies and a bit of a pest problem.”</p> <p>“So it might be enough for using for home probably, but not really for the kitchen. Not really for the hospital.”</p> <p>“I didn’t see the point of putting it inside. I would rather see a lot of those pods outside.”</p>	Relocate the garden outdoors.
Theme 3: Potential impact	<p>“So it has definitely added towards making our food more fresh and you know like homegrown and all that stuff.”</p> <p>“I mean, I can’t really say the difference between is organic or not. It’s like such a small quantity. So I mean, it’s fresh herbs, so it’s a nice feeling that you’re growing something by yourself when you’re using it in your cooking.”</p>	

less positive, viewing the gardens as another addition to their high workload: “Others see it as an extra bit of workload that they have to do.”

Feasibility Challenges

Senior Dietetic and Food service management endorsed and facilitated the implementation of

the gardens, a stance that was met with enthusiasm and positivity. However, the key informants shared common challenges relating to local food service leadership and communication. They recounted that during the garden’s implementation, a dedicated food service team leader assumed responsibility for overseeing all aspects of garden management, including tasks like

watering and harvesting, which were delegated to various team members. However, over time, it appeared that the accountability for garden upkeep waned, leading to a decline in garden productivity. One key informant said:

It started off well but gone downhill.

Since no one had been allocated the role and thus had no time to maintain the gardens, there was a sense of uncertainty regarding who would maintain the gardens. “There’s no allocation of the job, so nobody has time to go there.” Some key informants stressed the importance of establishing a structured roster system with clearly defined roles and responsibilities. They believed that such an approach would be far more effective in ensuring a consistent and reliable supply of fresh herbs.

The first thing is, it just comes from the management who is supposed to do the job and needs to allocate the job.

Certain aspects of the garden setup presented notable challenges. All key informants voiced concerns over the presence of pests within the kitchen even though separate to the key kitchen production areas. Introducing pests into the kitchen environment, where food safety and hygiene are paramount, was considered a significant issue by the kitchen staff. “We had pests, which made it, made it very difficult for us because we are dealing with food, and we can’t have flies flying around and all of that.” Some key informants suggested an outdoor setup that allowed proper ventilation and natural light would be more beneficial. “It’s not conducive to have all those pods inside. I’d rather have them outside in the fresh air.” Key informants also expressed their concerns over the limited production capacity, with the garden not meeting the high demand for herbs in the hospital’s kitchen.

Because all that doesn’t generate what we need every day. I mean, that would be great for a little restaurant. But here we’d go through 10 bunches of parsley just in one day.

There were also reported difficulties with procuring seeds, often tied to an internal lack of clarity about procurement processes. “So the other one that we have a bit of an issue is getting the seeds in time. So when you want to redo it, or whatever, we want to replant, sometimes there was a lag.”

Potential Impact

Key informants emphasized the advantages of the gardens as a valuable source of fresh herbs for the hospital’s culinary needs. The various herbs, including basil, chervil, coriander, mint, parsley, rosemary, and thyme, were incorporated into the menus, enhancing the quality and freshness of the dishes served. “With herbs, yeah. It’s very nice to have fresh herbs straight away’ and “You know, using the food, using it to grow our own food, and to be to serving to our patients is another.” However, some also noted that the fresh herbs from suppliers were of similar high quality. “Oh, it definitely improves the quality. But the herbs we are getting from outside they are also fresh. So, I mean, it’s pretty much the same.” One interviewee also commented on the benefits to staff well-being and engagement:

Staff well-being or staff engagement was one. You know, using the food, using it to grow our own food, and to be serving to our patients was another. So we did see some benefit in all of those areas.

Discussion

This study explored chefs experience with a newly implemented hospital-based kitchen garden at the Mater Hospital. In summary, findings suggest that the gardens were generally accepted by the chefs. However, the project’s feasibility was tempered by concerns relating to local food service leadership, communication, and aspects of the garden setup. The feasibility challenges have indicated areas where project implementation can be enhanced to maximize the benefits and acceptability among kitchen staff.

Overall, this study outlines that a hospital-based kitchen garden is well received by chefs, worthwhile, and could be feasible in the long term if identified challenges relating to local food service leadership, communication, and aspects of

the garden setup are effectively addressed. Interviewees offered several programmatic improvements to address these challenges, such as establishing a well-defined structured system with clear roles and responsibilities. Additionally, relocating the gardens outdoors was suggested to mitigate pest-related challenges and ensure a consistent supply of fresh herbs.

The challenges observed in this study are not unique to this hospital setting. Recent research on improving the environmental sustainability of hospital food services in the United States identified common limitations when implementing kitchen gardens, including start-up and maintenance costs, reliance on labor and volunteers, and variable seasonal yields (Collins, 2020). To address these challenges, the study recommended fostering collaboration between gardeners and food service staff to align crop selection with menu planning (Collins, 2020). This approach involved strategic coordination of menus and planning schedules, educational efforts, and creative utilization of existing crops (Collins, 2020). Increasing the size of planting beds or developing outdoor beds could help ease supply issues and enhance the project's sustainability. Additionally, to streamline the challenges associated with planting and menu planning, many hospital-based edible garden initiatives also use the gardens for educational purposes now (Collins, 2020). These programs, focusing on nutrition and culinary skills, not only simplify garden management but also offer a platform to educate and enhance outcomes for patients with medical conditions requiring specialized diets (Collins, 2020). The successful implementation of the Boston Medical Centre rooftop farm, as noted by Musicus et al. (2019), highlights the importance of these structural factors. These insights can be leveraged to enhance the functionality and success of the current project's gardens.

Despite the noted challenges, interviewees acknowledged the potential benefits of hospital-based kitchen gardens. Incorporating various herbs into patient meals enhanced meal quality and freshness, aligning with the broader goal of improving the hospital's culinary offerings. This finding underscores the potential of hospital-based kitchen gardens to contribute to patient

satisfaction positively. This is of particular significance as patient satisfaction with the hospital food service has been linked to improved nutritional intake, quicker recovery, and shorter patient stays, as well as positive feedback and reputation, and cost-related advantages for healthcare facilities (McCray, Maunder, Barsha, et al., 2018; McCray, Maunder, Krikowa, et al., 2018; Neaves et al., 2022). Furthermore, for chefs, cultivating their ingredients and serving them to patients appeared to boost morale and fostered a deeper connection to their work. These results are broadly consistent with another study evaluating the implementation of a rooftop farm (Musicus et al., 2019). In this study, interviewees emphasized the positive effects on both staff and patients, noting an enhanced sense of well-being stemming from their engagement with green spaces (Musicus et al., 2019).

Limitations

This study provides valuable insight into chef's experiences, providing a deeper understanding of the trials and tribulations of implementing a hospital-based kitchen garden. However, there are a few limitations to consider. First, the small sample size, specifically comprising hospital chefs, may limit the generalizability of findings due to a lack of diverse perspectives. Future evaluations could explore the perspectives of patients and other kitchen staff. Second, the study was conducted at a single facility, so the findings may lack generalizability across varied hospital sizes and food service operations. That said, the current project utilized indoor gardens, which could be applicable to healthcare organizations in varying geographical areas. The current study prioritized growing fresh herbs, though the production of other vegetables may be possible. Future research may adopt a multifacility approach and trial growing a broader range of produce to address these limitations and enhance applicability across diverse healthcare settings. Third, the face-to-face interviews may have introduced social desirability bias, where participants may have felt more inclined to report their experiences more favorably. Fourth, the timing of the study, conducted in the immediate post-COVID

era, introduced a unique set of challenges that may have influenced the study outcomes. For example, the food service sector, already affected by the pandemic, experienced supply chain disruptors, staff shortages, and heightened safety measures post-COVID. Managing these challenges took priority for local leadership in the day-to-day running of the food services and so may have inadvertently contributed to and impacted the ability to maintain the garden effectively and the study outcomes. Last, the subjective nature of qualitative analysis may have introduced research bias. However, efforts were made to minimize this bias through reflexivity and transparency in the research process. These limitations highlight opportunities for future research with larger, more diverse samples and expanded methodologies.

Conclusion

Findings from the current study suggest that the kitchen staff viewed the concept of a hospital-based kitchen garden favorably, perceiving it as closely aligned with their mission of providing nutritious meals to patients. Their affinity for gardening as an activity is also evident. However, there was a need for a more structured approach to integrate this additional task into their daily routine. Further research that examines the effective implementation of kitchen gardens in hospital settings and evaluates their impact on patient menus, patient satisfaction, hospital food service staff, and the workforce is warranted.

Implications for Practice

- *Address feasibility challenges:* Address common challenges associated with hospital-based garden initiatives, such as issues with leadership, communication, and garden setup, by implementing structured systems, roles, and responsibilities and considering outdoor garden locations to mitigate pests.
- *Hospital gardens as effective tools:* Healthcare settings to recognize the potential of hospital gardens in promoting physical, emotional, and mental well-being among patients, visitors, and staff, including

benefits like faster recovery, stress reduction, increased fruit, and vegetable consumption and improved cognitive and physical function.

- *Implementation of garden initiatives:* Encourage healthcare providers to implement gardens, including rooftop gardens, outdoor green spaces, courtyards, and even on-site farms, to supplement patient food supply, enhance patient satisfaction, alleviate food insecurity, and promote environmental sustainability. Adapt to facility-specific challenges by considering local context and resources. Apply successful strategies from similar initiatives for improved hospital garden project outcomes.
- *Promote research efforts:* Emphasize the need for research to understand further the role of kitchen gardens in healthcare settings and their effects on patient menus, staff work experiences, and overall well-being.

Authors' Contributions

Jennifer Utter conceived the research question, designed the questionnaire, and distributed and collected baseline data. Chloe Carroll conducted interviews, collected, analyzed, and interpreted follow-up data and drafted the manuscript. Jennifer Utter and Sally McCray interpreted the findings and critically reviewed the manuscript. All authors approved the final submission.

Acknowledgments

The authors would like to thank Louise Van Herwerden and Dianne Reidlinger for their support with qualitative analysis.


Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Vegepods Australia donated the soil and raised pods used in this project. Vegepods Australia has had no input into any aspect of the evaluation of the gardens. Chloe Carroll has previously collaborated and been gifted a Vegepod.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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References

- Attwell, C., Jöhr, J., Pincherle, A., Pignat, J. M., Kaufmann, N., Knebel, J. F., Berney, L., Ryvlin, P., & Diserens, K. (2019). Neurosensory stimulation outdoors enhances cognition recovery in cognitive motor dissociation: A prospective crossover study. *NeuroRehabilitation*, *44*(4), 545–554. <https://doi.org/10.3233/nre-192692>
- Baillie, E., Bjarnholt, C., Gruber, M., & Hughes, R. (2009). A capacity-building conceptual framework for public health nutrition practice. *Public Health Nutrition*, *12*(8), 1031–1038. <https://doi.org/10.1017/S1368980008003078>
- Carroll, C., Higgs, J., McCray, S., & Utter, J. (2023). Implementation and impact of healthcare gardens: A scoping review. *Journal of Integrative and Complementary Medicine*. Under review.
- Collins, J. (2020). Exploring strategies to improve the environmental sustainability of hospital foodservices. *Winston Churchill Trust*. <https://www.churchilltrust.com.au/project/to-explore-strategies-to-improve-the-environmental-sustainability-of-hospital-foodservice-usa/>
- Cordoza, M., Ulrich, R. S., Manulik, B. J., Gardiner, S. K., Fitzpatrick, P. S., Hazen, T. M., Mirka, A., & Perkins, R. S. (2018). Impact of nurses taking daily work breaks in a hospital garden on burnout. *American Journal of Critical Care*, *27*(6), 508–512. <https://doi.org/10.4037/ajcc2018131>
- Daré, L. O., Bruand, P.-E., Gérard, D., Marin, B., Lameyre, V., Boumédiène, F., & Preux, P.-M. (2019). Co-morbidities of mental disorders and chronic physical diseases in developing and emerging countries: A meta-analysis. *BMC Public Health*, *19*(1), 304. <https://doi.org/10.1186/s12889-019-6623-6>
- Egli, V., Oliver, M., & Tautolo, E.-S. (2016). The development of a model of community garden benefits to wellbeing. *Preventive Medicine Reports*, *3*, 348–352. <https://doi.org/10.1016/j.pmedr.2016.04.005>
- George, D. R., Rovniak, L. S., Kraschnewski, J. L., Hanson, R., & Sciamanna, C. N. (2015). A growing opportunity: Community gardens affiliated with US hospitals and academic health centers. *Preventive Medicine Reports*, *2*, 35–39. <https://doi.org/10.1016/j.pmedr.2014.12.003>
- Gilchrist, K., Brown, C., & Montarzino, A. (2015). Workplace settings and wellbeing: Greenspace use and views contribute to employee wellbeing at peri-urban business sites. *Landscape and Urban Planning*, *138*, 32–40. <https://doi.org/10.1016/j.landurbplan.2015.02.004>
- Knezevic, I., Mount, P., & Clement, C. (2016). Shared opportunities on institutional lands: On-site food production, its benefits, barriers, and opportunities. *Health Environment Research and Design*, *10*(1), 144–154. <https://doi.org/10.1177/1937586716638101>
- Lee, C. B., Chen, M. S., Powell, M. J., & Chu, C. M.-Y. (2013). Organisational change to health promoting hospitals: A review of the literature. *Springer Science Reviews*, *1*(1), 13–23. <https://doi.org/10.1007/s40362-013-0006-7>
- Lehmann, L. P., Detweiler, J. G., & Detweiler, M. B. (2018). Veterans in substance abuse treatment program self-initiate box gardening as a stress reducing therapeutic modality. *Complementary Therapies in Medicine*, *36*, 50–53. <https://doi.org/10.1016/j.ctim.2017.10.013>
- McCray, S., Maunder, K., Barsha, L., & Mackenzie-Shalders, K. (2018). Room service in a public hospital improves nutritional intake and increases patient satisfaction while decreasing food waste and cost. *Journal of Human Nutrition and Dietetics*, *31*(6), 734–741. <https://doi.org/10.1111/jhn.12580>
- McCray, S., Maunder, K., Krikowa, R., & MacKenzie-Shalders, K. (2018). Room service improves nutritional intake and increases patient satisfaction while decreasing food waste and cost. *Journal of the Academy of Nutrition and Dietetics*, *118*(2), 284–293. <https://doi.org/10.1016/j.jand.2017.05.014>
- Moore, H., Boisvert, K., Bryan, M., Hoare, L., Gates, M., Garnett, B., Kennedy, A. G., & Latreille, M. (2023). Inspired to garden: A qualitative study of participants' experiences in an academic medical

- center garden. *Cureus*, 15(7), e41695. <https://doi.org/10.7759/cureus.41695>
- Musicus, A. A., Vercammen, K. A., Fulay, A. P., Moran, A. J., Burg, T., Allen, L., Maffeo, D., Berger, A., & Rimm, E. B. (2019). Implementation of a rooftop farm integrated with a teaching kitchen and preventive food pantry in a hospital setting. *American Journal of Public Health*, 109(8), 1119–1121. <https://doi.org/10.2105/ajph.2019.305116>
- Neaves, B., Bell, J. J., & McCray, S. (2022). Impact of room service on nutritional intake, plate and production waste, meal quality and patient satisfaction and meal costs: A single site pre-post evaluation. *Nutrition & Dietetics*, 79(2), 187–196. <https://doi.org/10.1111/1747-0080.12705>
- Nieberler-Walker, K., Desha, C., Bosman, C., Roiko, A., & Caldera, S. (2023). Therapeutic hospital gardens: Literature review and working definition. *Health Environment Research and Design*, 16(4), 260–295. <https://doi.org/10.1177/19375867231187154>
- Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health*, 23(4), 334–340. [https://doi.org/10.1002/1098-240x\(200008\)23:4<334::aid-nur9>3.0.co;2-g](https://doi.org/10.1002/1098-240x(200008)23:4<334::aid-nur9>3.0.co;2-g)
- Ulrich, R. S., Cordoza, M., Gardiner, S. K., Manulik, B. J., Fitzpatrick, P. S., Hazen, T. M., & Perkins, R. S. (2020). ICU Patient family stress recovery during breaks in a hospital garden and indoor environments. *Health Environment Research and Design*, 13(2), 83–102. <https://doi.org/10.1177/1937586719867157>
- Vegepod. (2003). *Vegepod*. Retrieved February 17, from <https://vegepod.com.au/>
- Veldheer, S., Winkels, R. M., Cooper, J., Groff, C., Lepley, J., Bordner, C., Wagner, A., George, D. R., & Sciamanna, C. (2020). Growing healthy hearts: Gardening program feasibility in a hospital-based community garden. *Journal of Nutrition Education and Behavior*, 52(10), 958–963. <https://doi.org/10.1016/j.jneb.2020.07.006>