

*A Multi-Model Approach on
the use of Clinical
Aromatherapy*

Three Research Projects

- **Nursing Stress**
- **Post-Operative Patient Pain & Anxiety**
- **Post-Procedure/Post-Operative Nausea & Vomiting**



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Parkland Health

- Quality & Safety Manager – Perioperative Services
- Workforce Safety Director - Quality & Safety Operations at Parkland Health

Learning Points

Learn the outcomes and the importance of nurse-led research for three projects in an urban-based, safety-net community hospital system focusing on the improvement of staff wellness and patient care outcomes.

How the use of aromatherapy reduced stress levels in nurses during a worldwide pandemic

The use of aromatherapy on inpatient surgical patients with pain and anxiety, and how this non-pharmacological alternative reduced pain scores and PRN opioid use.

Using aromatherapy on post-operative and post-procedural patient population to reduce secondary use of PRN antiemetic use for nausea and vomiting.

Conflict of Interest



The author/presenter has no conflicts of interest to declare. All co-authors have seen and agree with the contents of this presentation and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication at this time.



UNIVERSITY HOSPITAL COLLABORATION GRANT

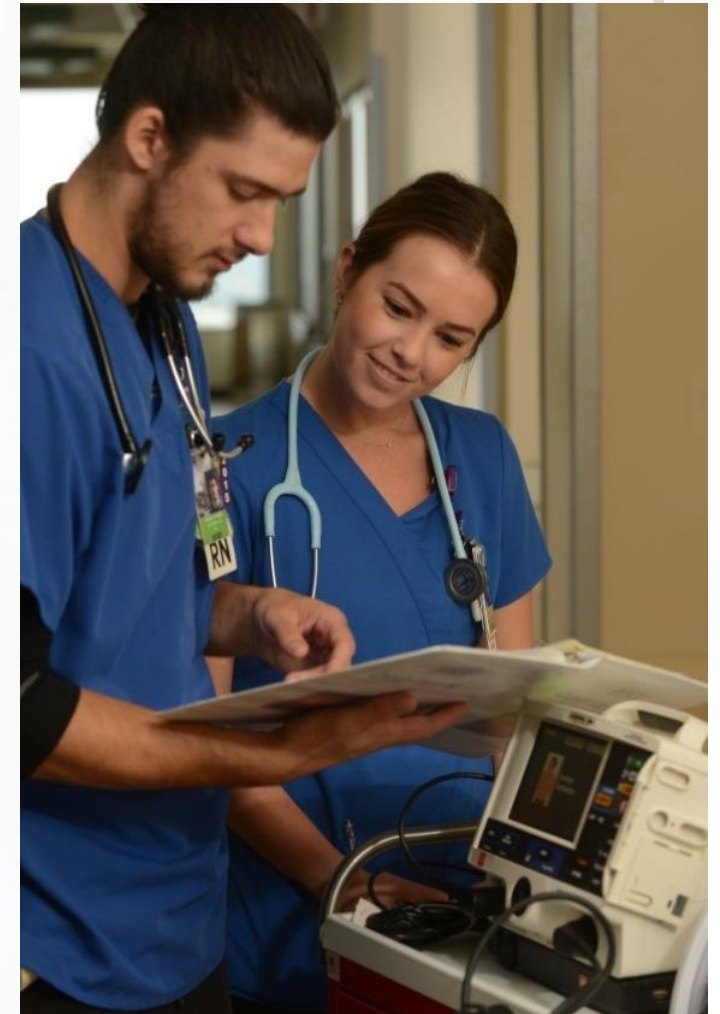
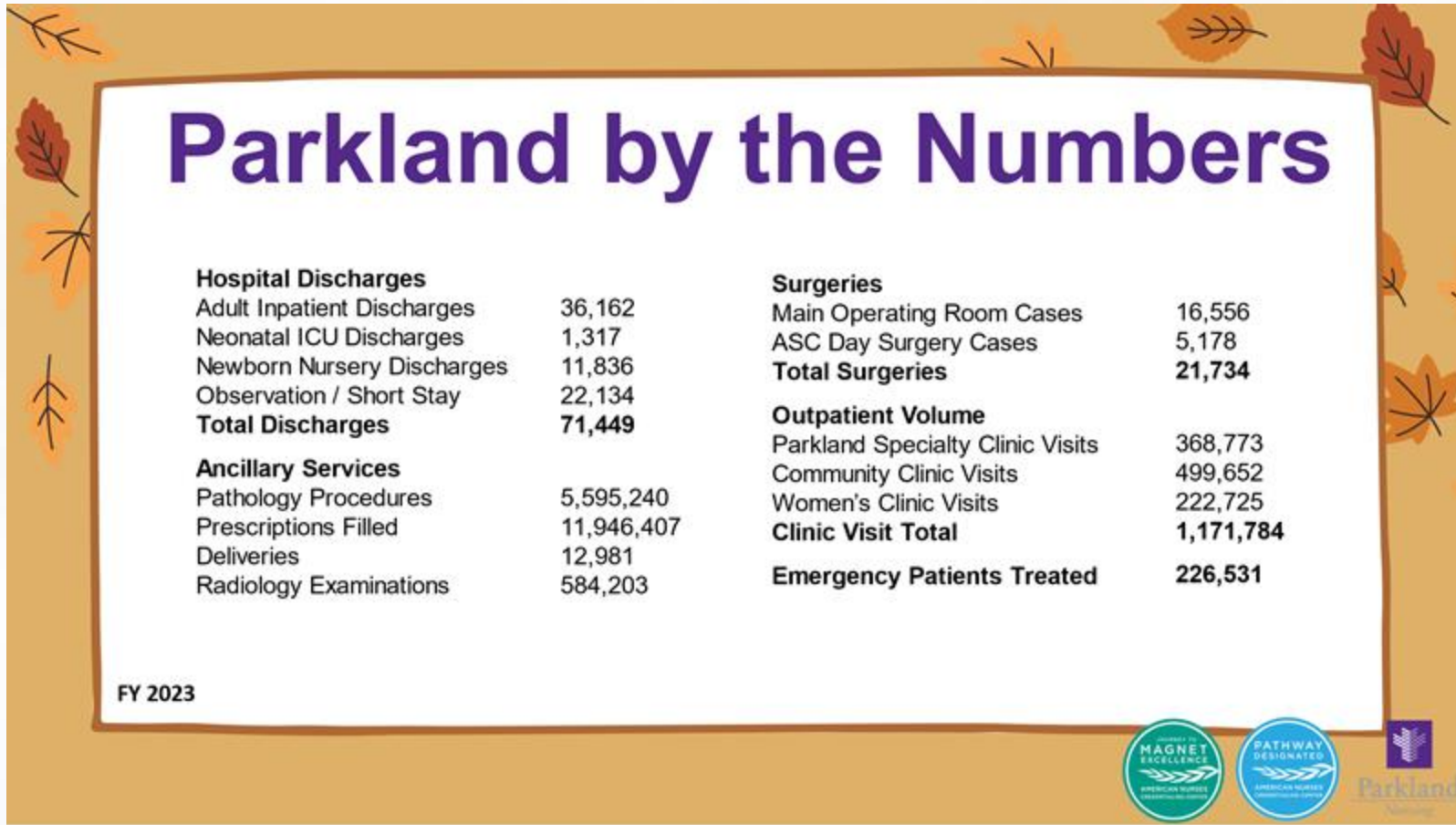
A very special thank you to West Coast University!



Parkland



Parkland Health by the Numbers





Three Research Project

- **(Code Purple)**
- **(Post-Operative Pain & Anxiety)**
- **(Post-Operative/Post-Procedural Nausea & Vomiting)**

CODE PURPLE!
The Use of Aromatherapy in
Reducing Nursing Stress
in an Urban-Based, Safety Net County
Hospital

Purpose

The Parkland “Code Purple” aromatherapy project aims to focus on nurses experiencing mental or emotional stressors.

The most common found stressors were compassion fatigue, violence, time-pressures, exposure to infectious disease, needlestick injury, sleep deprivation, role ambiguity and conflict, understaffing, dealing with difficult or critically ill patients, or death.

- Project Start Date: 6/1/2021
- Project End Date: 9/15/2021
- 326 Total Participants
- 7 Excluded (Not RN/LVN)
- 319 Remaining



Research Plan

Nurse identified by:

- Leadership
- Self-identified
- SPARKS member

Process

- Identified nurse will be informed and consented regarding the study.
- An aroma patch will be given to the nurse.
- They placed the aromatab on their uniform top to allow for continuous exposure to the scent.
- Four (4) hours later – nurse completes survey as to the effects of the aromatab using a QR code.



Data Collection

Survey Questions (QR Code Based)

Unit location

- Are you an RN or LVN?
- Gender
- Age
- How would you rate your stress level BEFORE use of Aromatherapy?
- Please select the most applicable reason for your stress today.
- What was your experience using Aromatherapy?
- Would you recommend the use of Aromatherapy to co-workers?
- How would you rate your stress level AFTER the use of Aromatherapy?

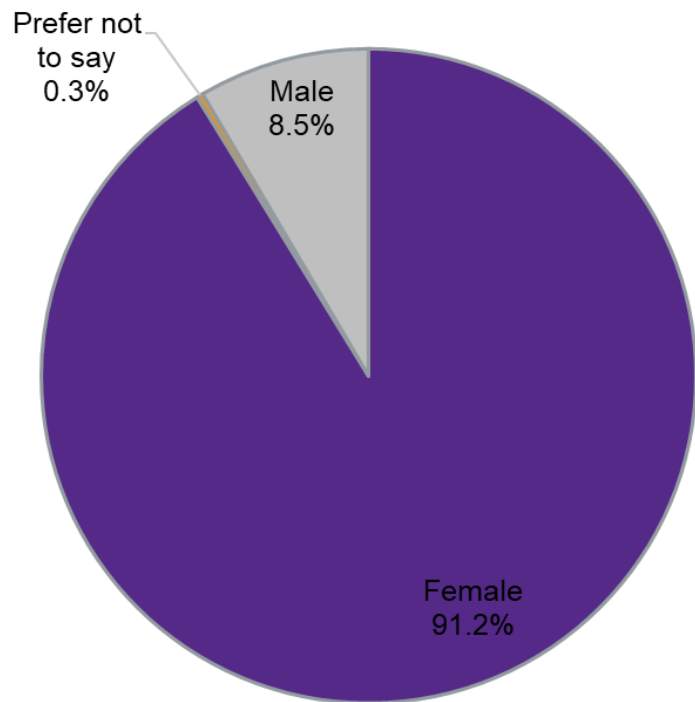
Method

- Paired T-test used to evaluate difference in Likert scale questions (0-10) BEFORE and AFTER Aromatherapy.

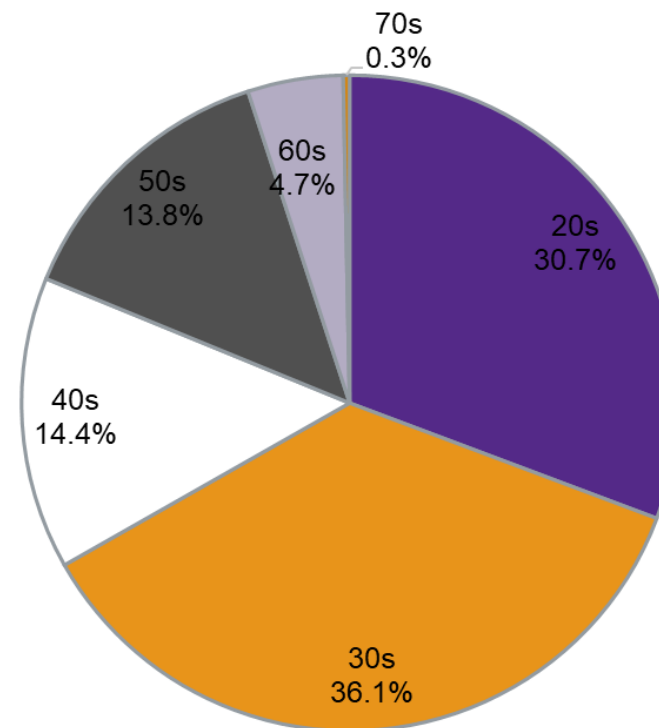


Demographics

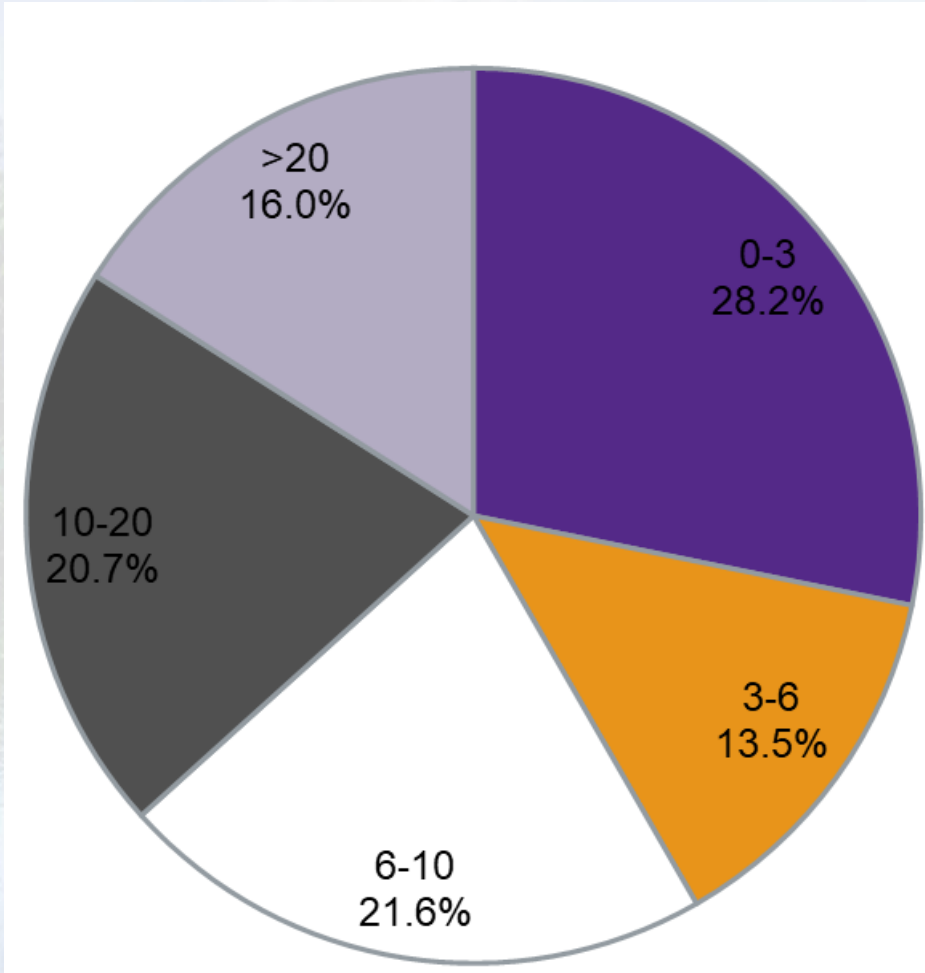
Gender



Age

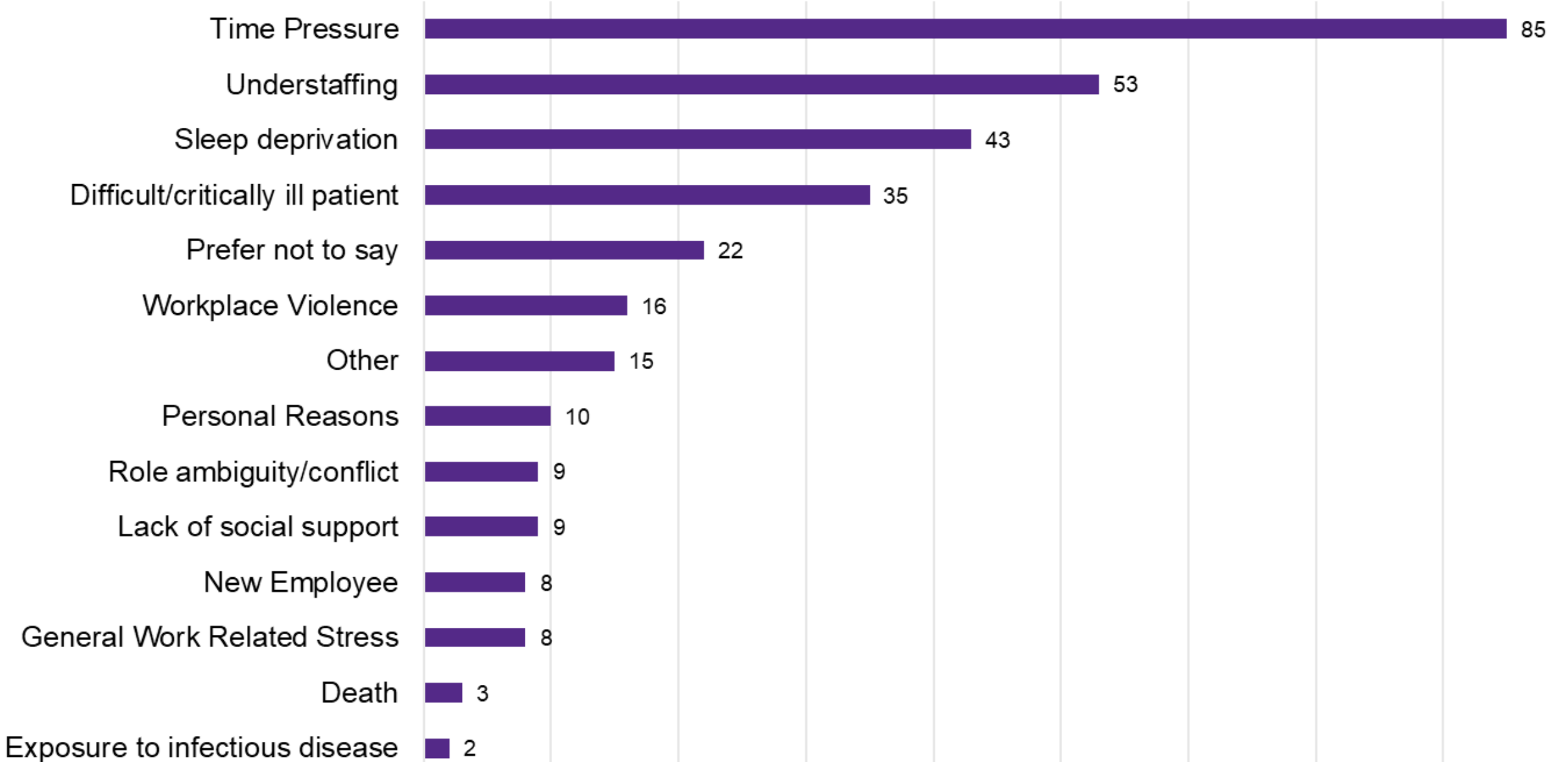


Years of Nursing Experience

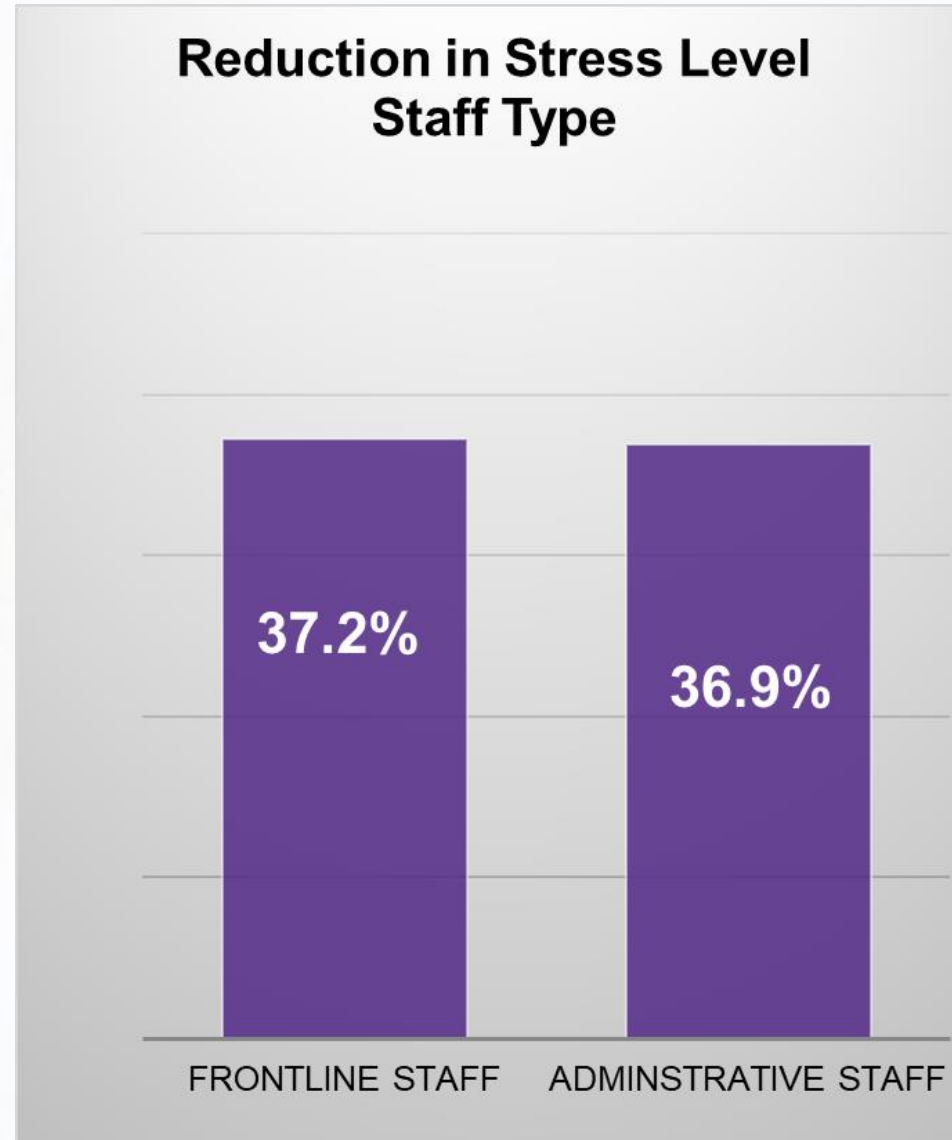
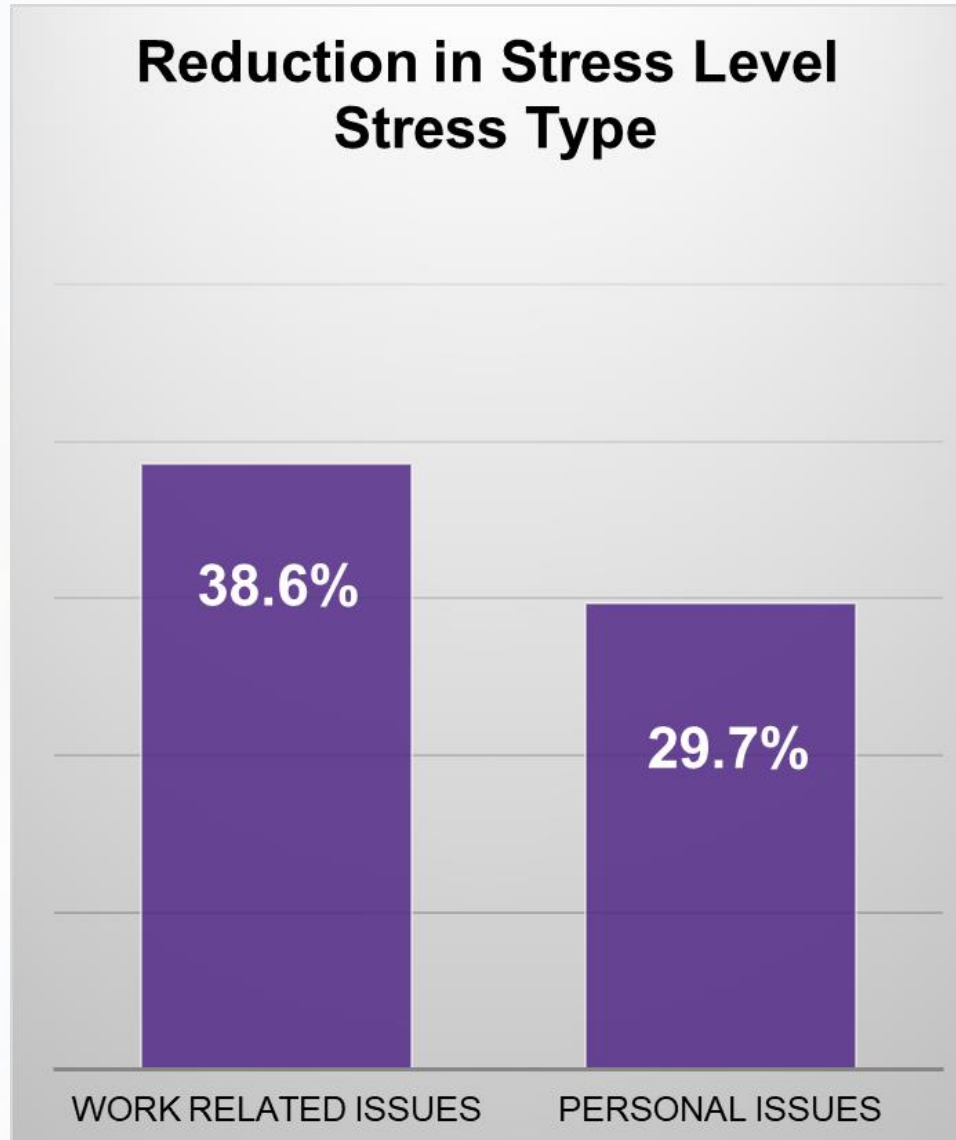


Years of Experience	Average Stress Level Before Use (Out of 10)	Average Stress Level After Use (Out of 10)	Reduction in Stress Level	Paired T-test p-value
0-3	5.8	3.7	36.2%	<0.01
3-6	6.1	3.1	49.2%	<0.01
6-10	6.1	3.8	37.7%	<0.01
10-20	6.4	4.2	34.4%	<0.01
>20	5.5	3.8	30.9%	<0.01

Most Common Staff Stressors

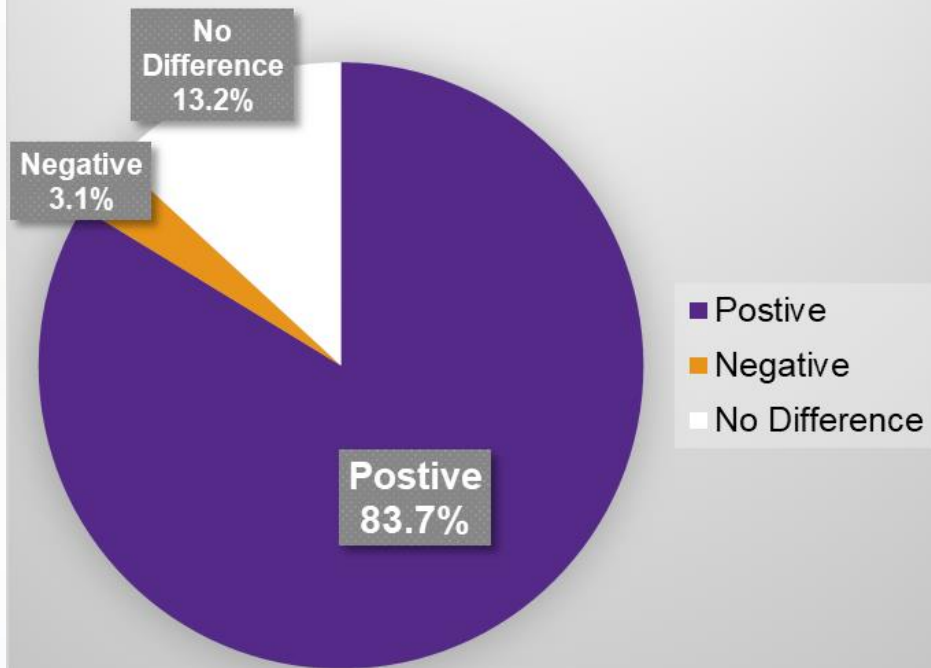


Specific Stress Reduction

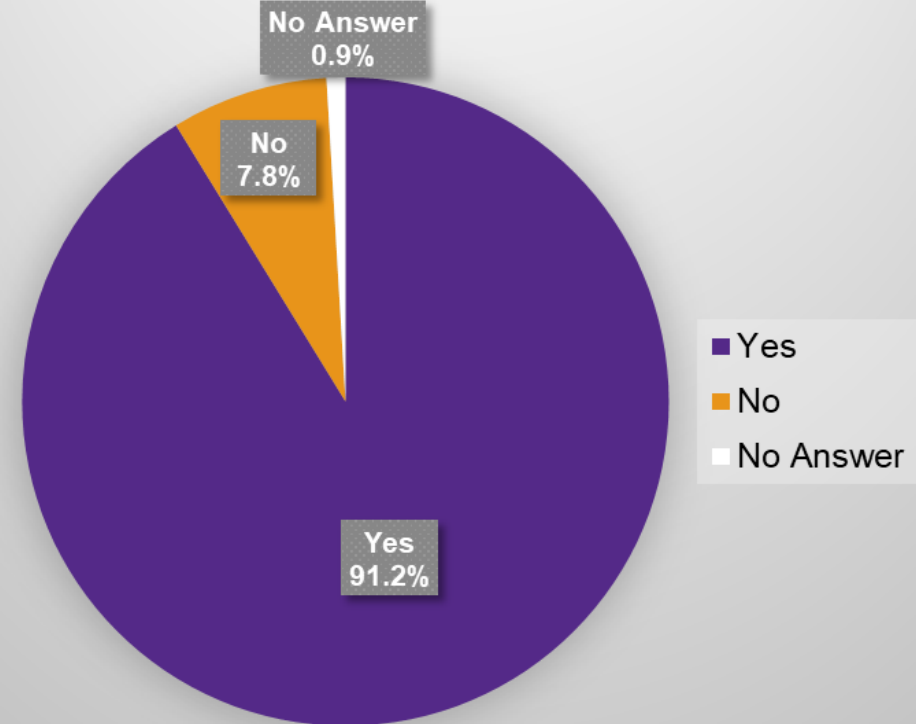


Findings

What was your experience using Aromatherapy?



Would you recommend the use of Aromatherapy to co-workers?



Takeaways



Self-Reported Stress Reduction



36.7%

Positive Experience with Aromatherapy



83.7%

Would Recommend for Managing Stress



91.2%

The Effectiveness of Aromatherapy in an Urban, Safety-Net Hospital on Pain and Anxiety



Purpose

- The purpose of this project was to evaluate the effectiveness of aromatherapy as an alternative and/or complement treatment for pain and anxiety in the acute care setting at Parkland Health and Hospital System.
- Secondary aim was to evaluate the use of aromatherapy in the adult burn inpatient for treatment of pain and anxiety.

Date & Numbers

Project Start Date:
3/01/2021

Project End Date:
10/31/2021

Total Participants: 184

Excluded: 40

Remaining: 144

Research Plan

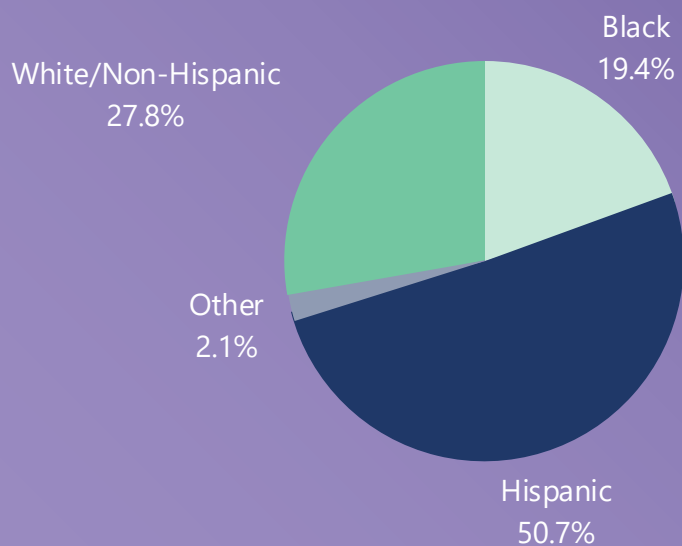
- Lavender-Sandalwood scented aroma stickers chosen.
- Used on post-surgical patient in the inpatient setting.
- 72-hours after surgery.
- Patients were consented before procedure or, if appropriate, after they arrive to the medical/surgical specialty unit.
- Units were: Orthopedic, Plastics, General Surgery & Trauma, & Burns.
- Pain scale threshold from 7-10 requiring opioid pain medication administration.
- Patient survey after 3 days participation.

Data Collection/Sample Size

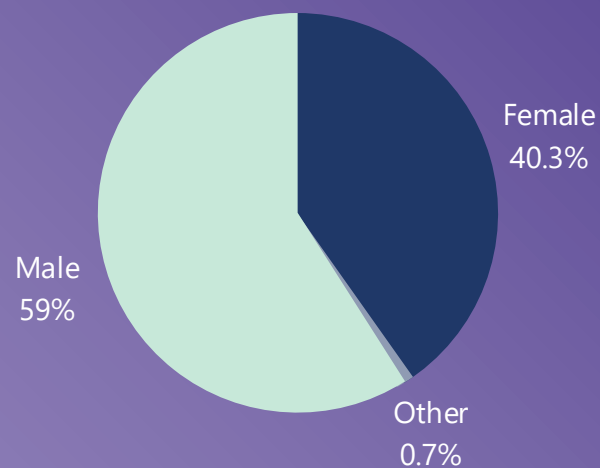
- Study outcomes were tracked through the Epic electronic medical record (opioid usage and pain scores) and patient surveys.
- Sample size for the current study group is 144. Data for the matched historical control group (N=144) from the prior year time frame will be collected.
- The primary endpoint for this study is a decrease in the percentage of study patient that are in the pain score threshold from 7-10 requiring pain medications 72 hours after surgery.
- Demographic and other clinically relevant information were compared between study and historical control group to account for any differences.
- The study assumes that the percentage of those remaining in the pain score threshold of 7-10 will be 60% within the multiple service lines. A group sample size of 144 in study group and 144 in historical control group achieve 80% power to detect a difference between the group pain score threshold proportions of -0.08. the pain score threshold proportion in study group (the treatment group) is assumed to be 0.60. The significance level of the test was targeted at 0.05. the proposed plan for 144 per group is over the minimum required for the study.

Demographics

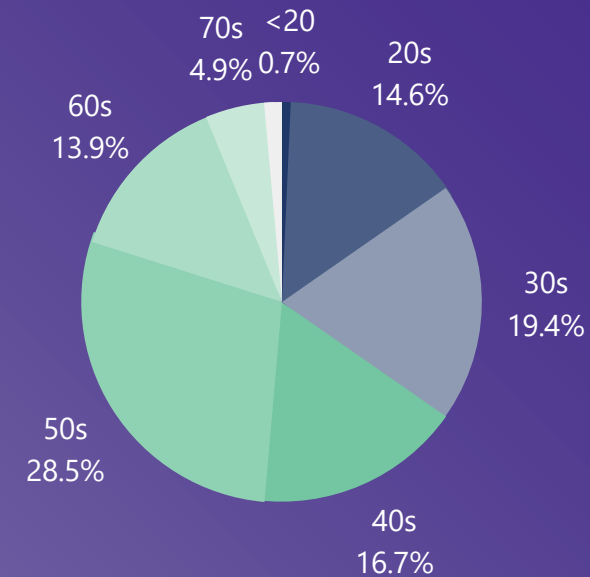
Race



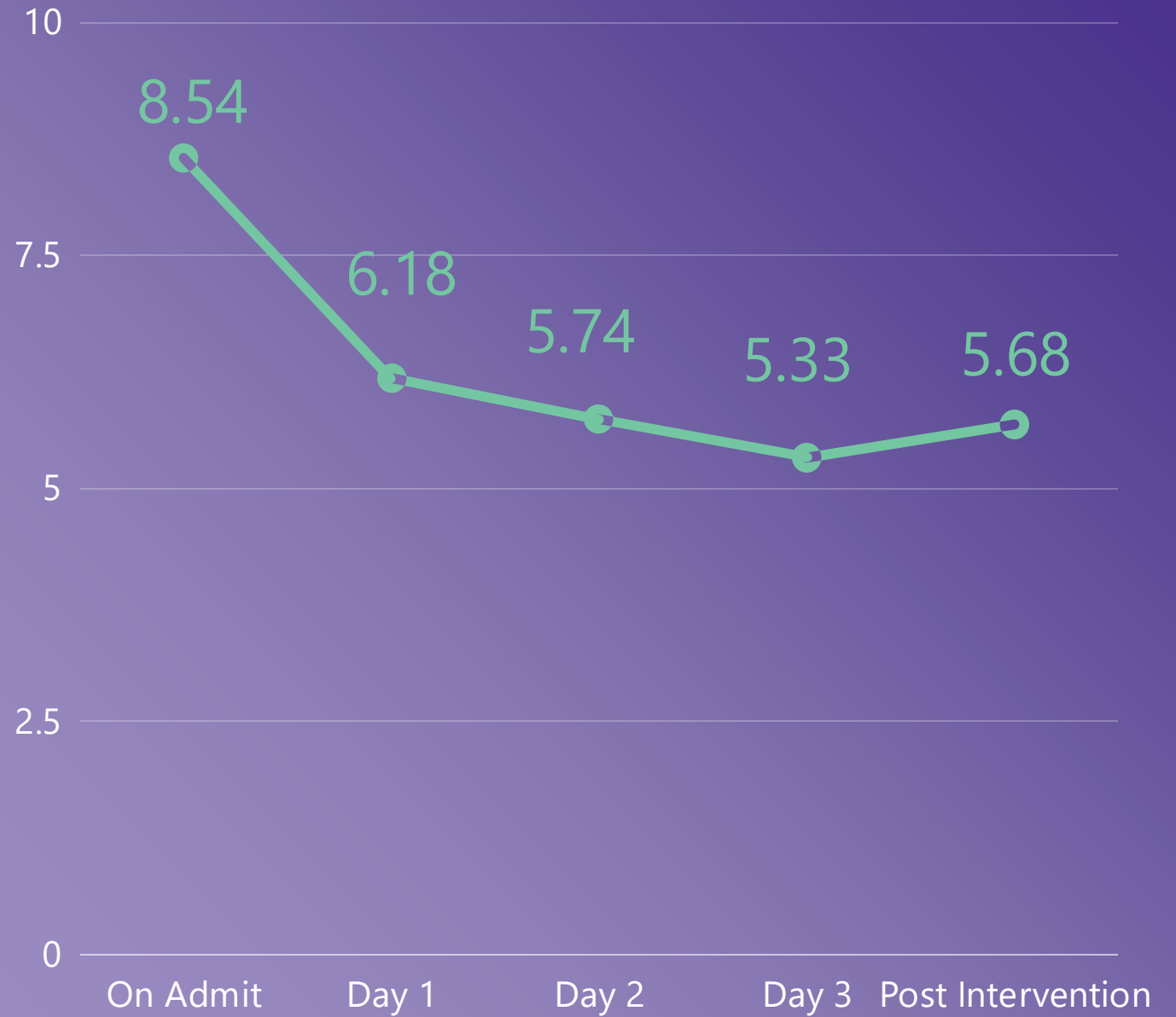
Gender



Age



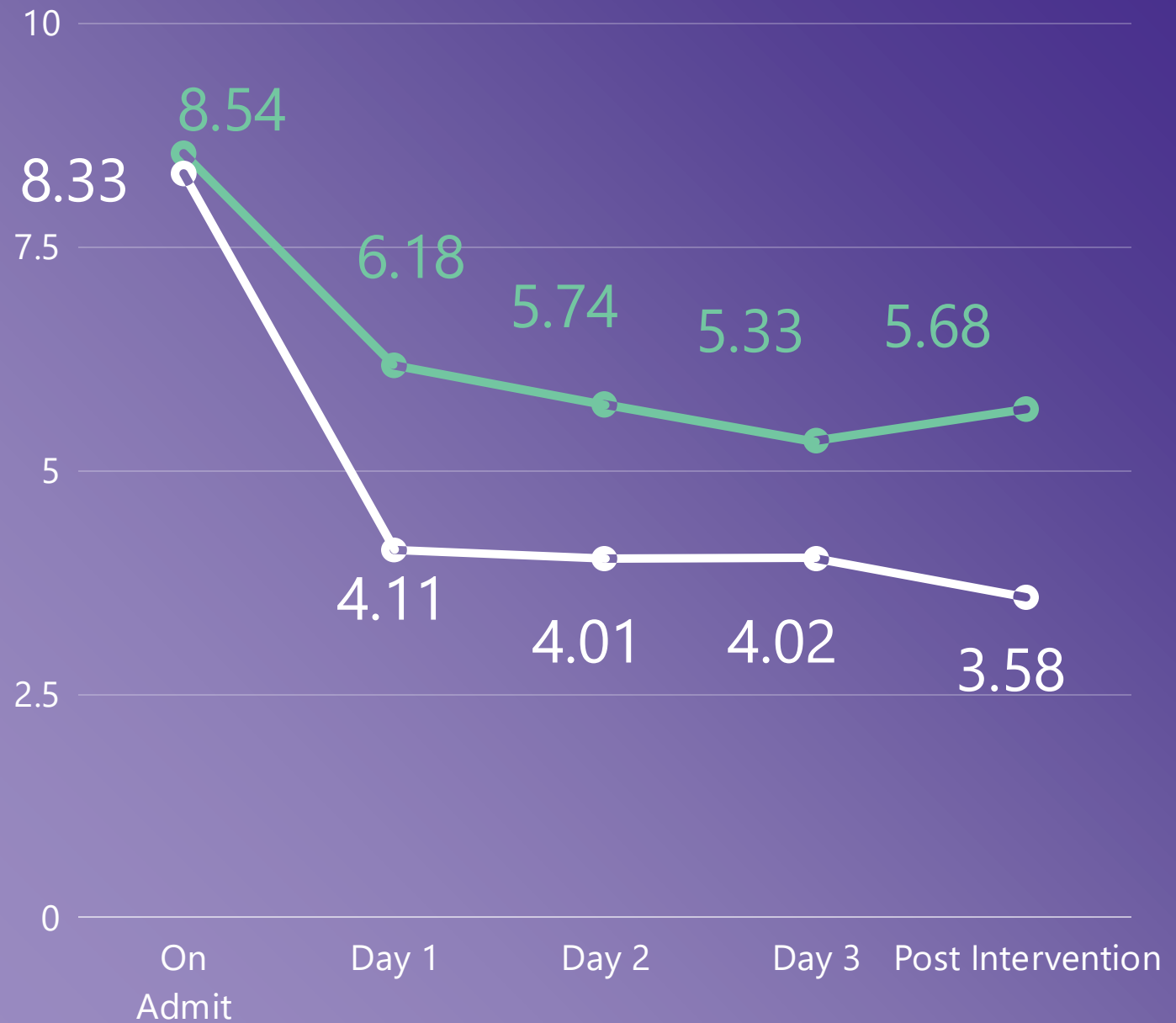
AVERAGE PAIN SCORES CONTROL GROUP



AVERAGE PAIN
SCORES
ADJUNCTIVE
AROMATHERAPY
EXPERIMENTAL
GROUP



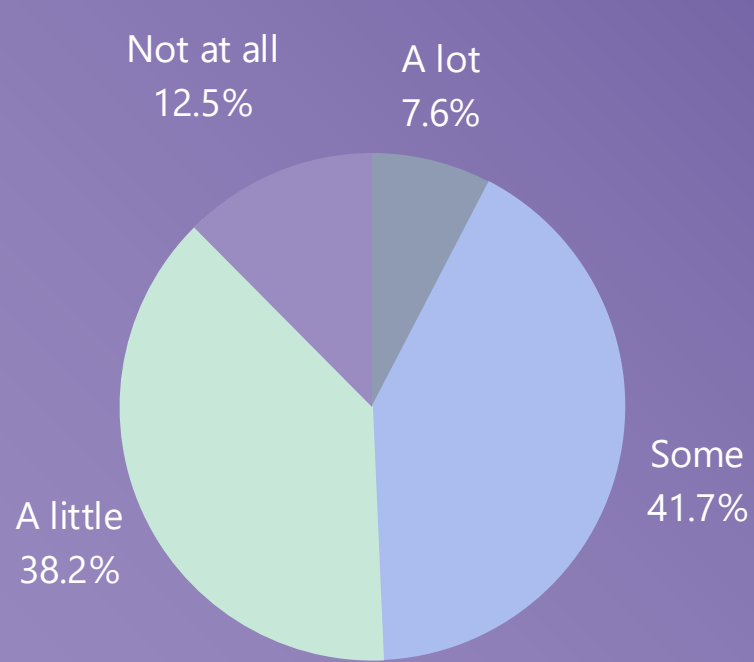
AVERAGE PAIN SCORES COMPARISON



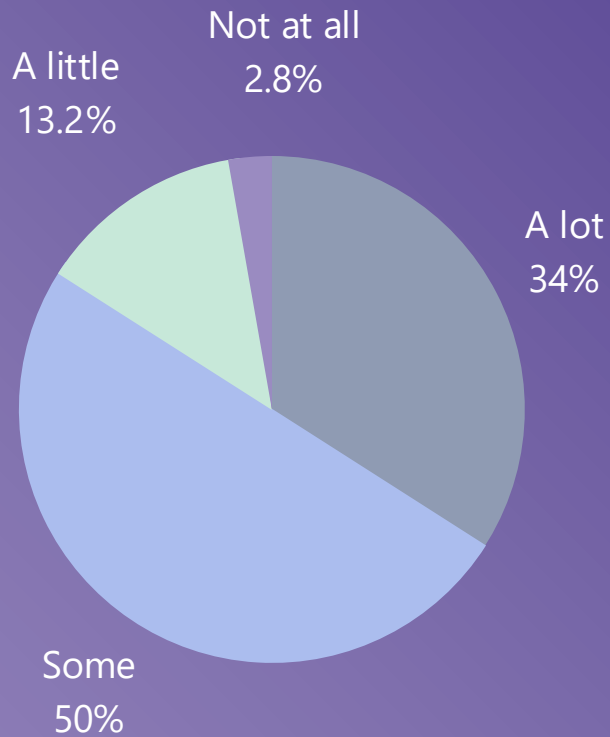
AVERAGE PAIN SCORES COMPARISON TAKE AWAYS

	Average Pain Scores Control Group	Average Pain Scores Adjunctive Aromatherapy Group	Average Pain Score Improvement with use of Adjunctive Aromatherapy
On Admit	8.54	8.33	2%
Day 1	6.18	4.11	33%
Day 2	5.74	4.01	30%
Day 3	5.33	4.02	25%
Post Intervention	5.68	3.58	37%

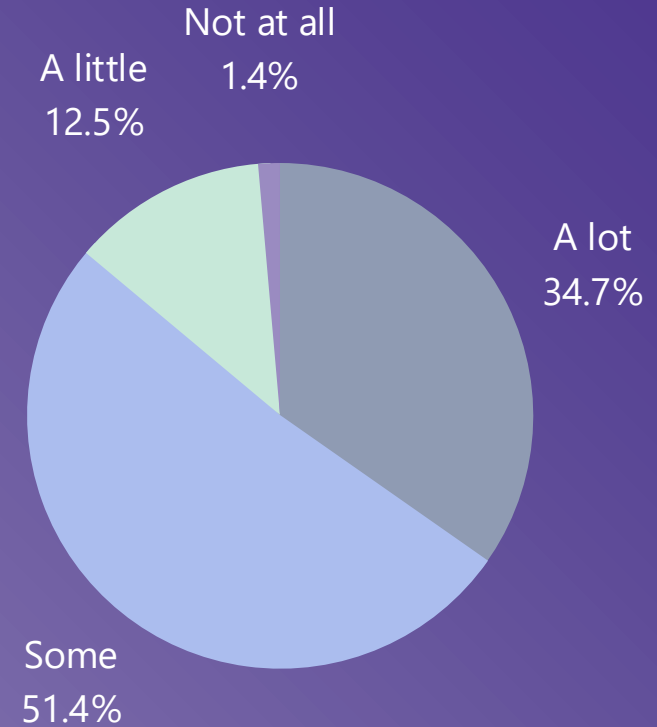
Patient Responses: Adjunctive Aromatherapy Experimental Group



How much did aromatherapy help you with your pain?



How much did aromatherapy help you feel comfortable?

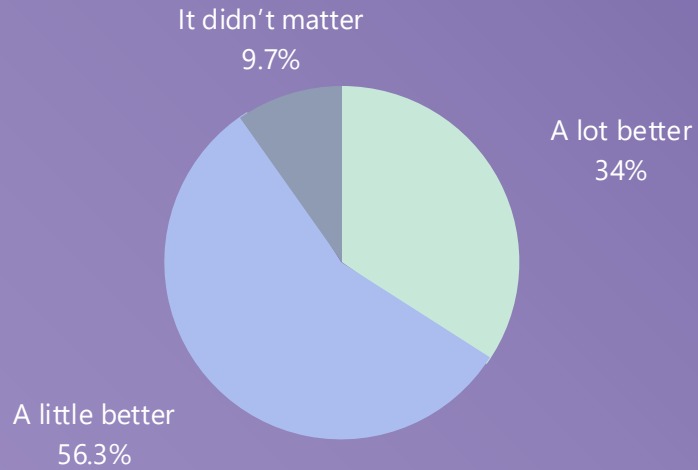


How much did aromatherapy help you relax?

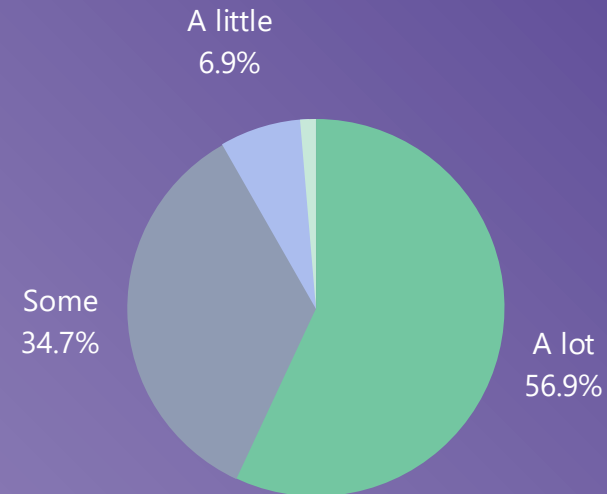
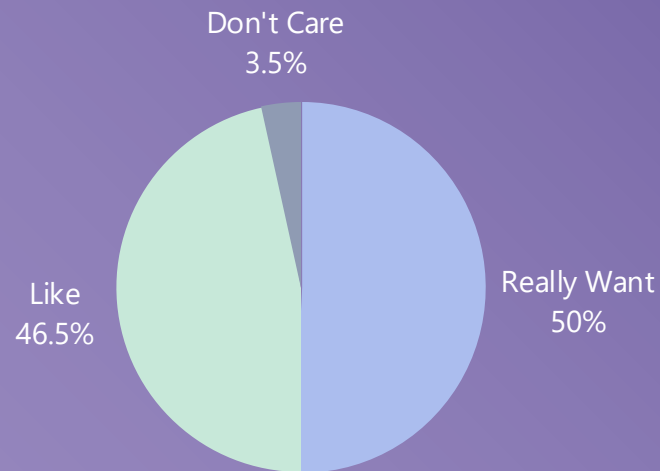
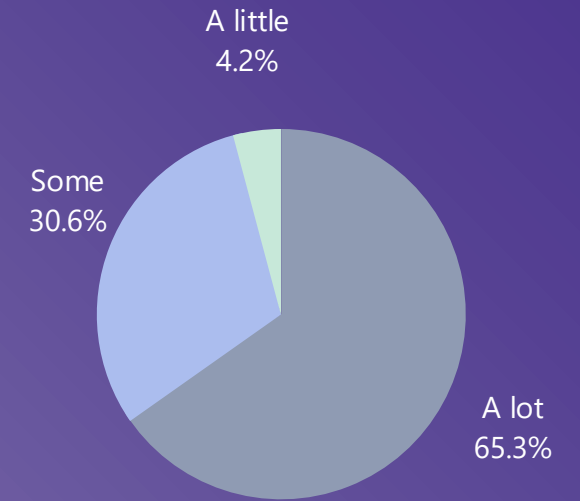
Patient Responses

Adjunctive Aromatherapy Experimental Group

How much better or worse did your aromatherapy make you feel?



How much would you want aromatherapy if you were staying in the hospital?



How much would you want your friends or family to have aromatherapy?

How much did aromatherapy make you feel like Parkland cared for you?



The Use of Orange-Peppermint Aromatherapy on Post-Procedure/Post-Operative Nausea and Vomiting in an Urban Based, Safety-Net Community Hospital

Purpose

The purpose of this project at Parkland was to assess the effectiveness of aromatherapy as an alternative and/or complement treatment in the hospital and ambulatory procedural setting. Post-procedural nausea and vomiting/post-operative nausea and vomiting (PPNV/PONV)) is one of the most common complications after surgery and a significant cause of dissatisfaction among post-procedural patients.

Traditional first line treatment with antiemetic medications can cause severe side effects and can have compounding interactions with other medications.

Aromatherapy has been increasing in popularity for treatment of PPNV/PONV due to its safety, absence of drug interaction and side effects, ease of administration, and rapid onset creating a nurse driven treatment option.



Dates and Numbers

- Project Start Dates: 11/01/2021
- Project End Date: 1/31/2022
- Total Participants: 334
- Excluded: 37
- Remaining: 297



Research Plan

- Patient consented in Pre-Operative holding area.
- Orange-Peppermint aromatab placed on patient gown upon arrival to PACU.
- Focused was on the first 8-hours after surgery.
- Patient survey completed before patient left PACU.

Data Collection/Sample Size

The primary endpoint for this project was the percentage of study patients that receive a second dose of PONV medications 24 hours after surgery. The control group will be from the same previous year time frame to control for any seasonal bias. Demographic and other clinically relevant information will be compared between study and control group to account for any differences. The study assumes that the percentage of those that receive a second dose is 80% within these two service lines. A group sample size of 297 in study group and 297 in control group achieve 80% power to detect a difference between the group second dose proportions of -0.10. The second dose proportion in study group (the treatment group) is assumed to be 0.80 under the null hypothesis and 0.70 under the alternative hypothesis. The second dose proportion in control group is 0.80. The significance level of the test was targeted at 0.05. The proposed plan for 300 per group is over the minimum required for the study.

Methods

- This study will follow the patient population for up to 8 hours post procedure recovery in PeriAnesthesia care unit.
- Informed consent was obtained in the pre-procedural holding area using the patient's native language.
- An aromatherapy sticker was placed on the upper portion of the patient gown upon arrival to the PACU.
- Demographic and survey data was collected for each patient before discharge

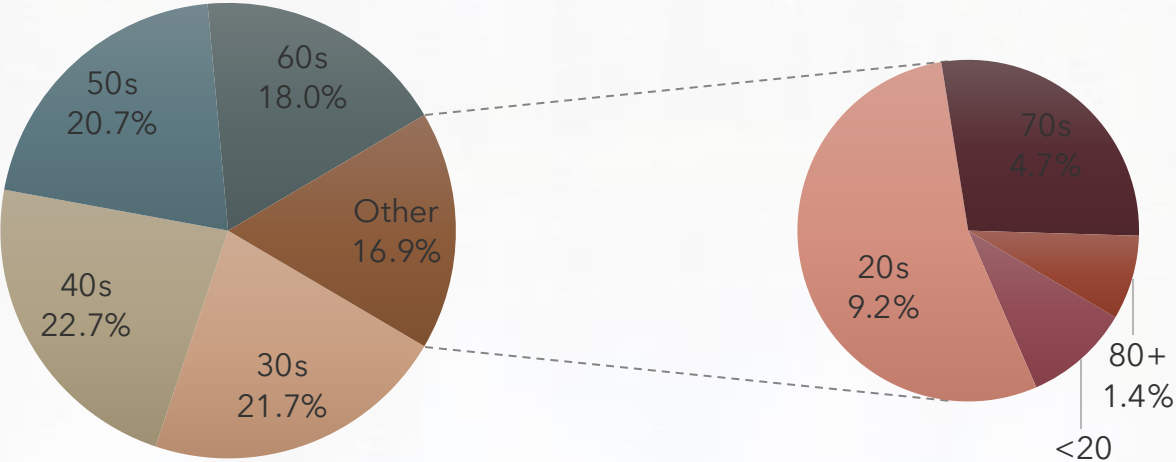
Samples and Results

- 336 patients enrolled, 8 bypassed PACU and went directly to the ICU setting, 4 patients refused, 4 disqualified, 1 left AMA, 2 patches were not placed in PACU, 1 case canceled.
- 246 patients from Main OR, 30 patients from ASC, 40 Patients from GI Lab.
- 38 patients (13.6%) received light sedation/monitored anesthesia care (MAC).
- 278 patients (86.4%) received general sedation.
- Females made up 62.7%, Males made up 36.9%, and transgender made up 0.3%.
- Overall, patients receiving adjunctive had a reduction in antiemetic administration by 38.9%.
- Patients receiving adjunctive aromatherapy and general anesthesia had a reduction in antiemetic administration by 13.6%.
- Patient receiving adjunctive aromatherapy and monitored anesthesia care had a reduction in antiemetic administration by 100%.

Demographics

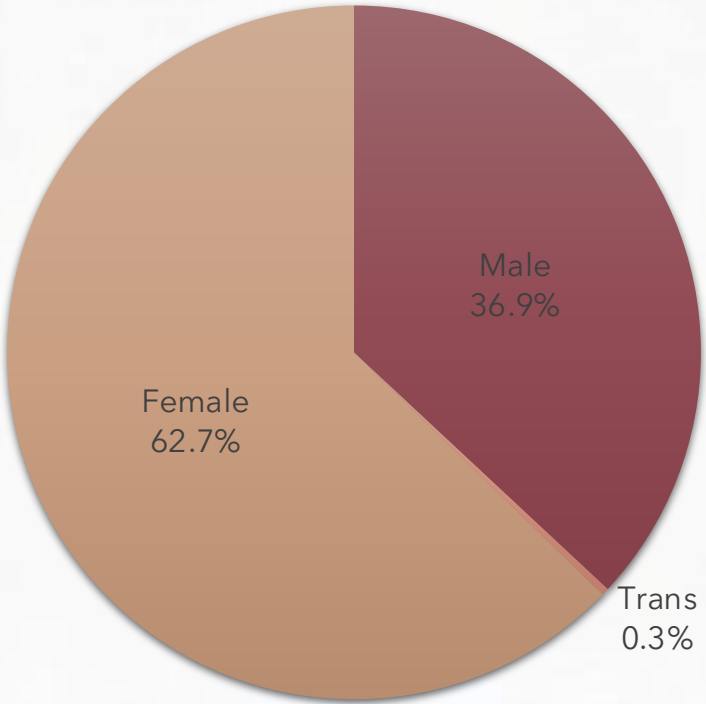
All Participants

Age



■ <20 ■ 20s ■ 30s ■ 40s ■ 50s ■ 60s ■ 70s ■ 80+

Gender

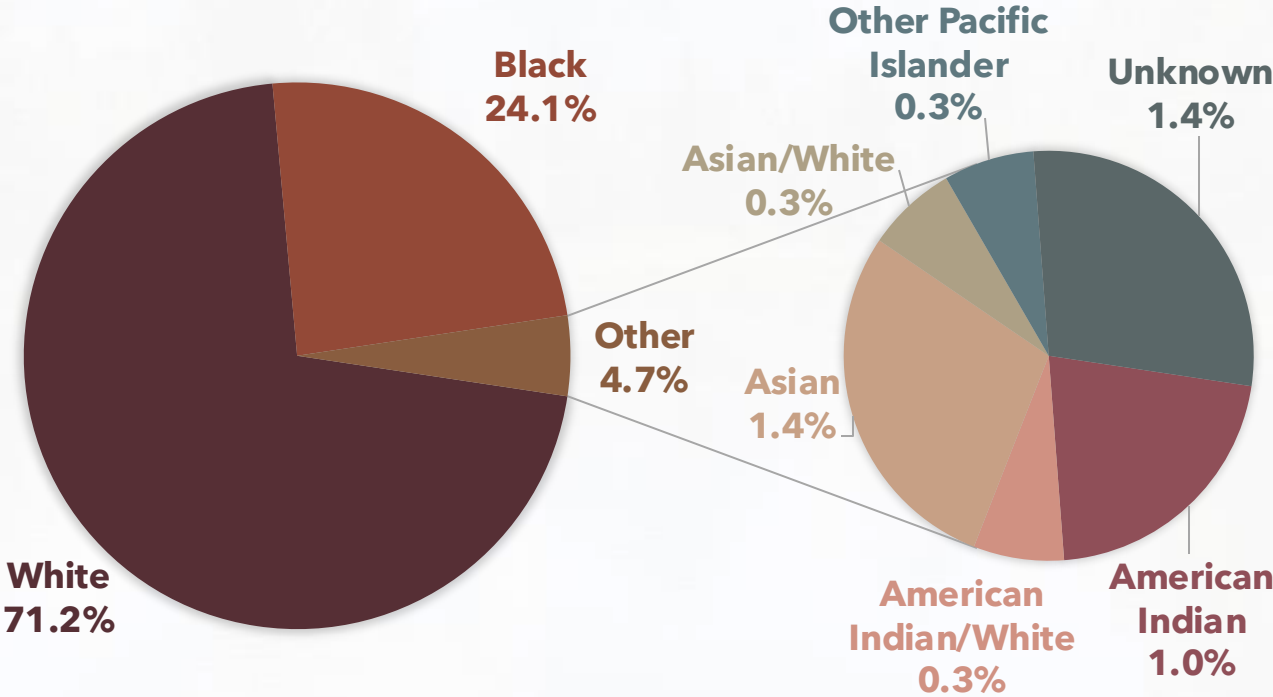


■ M ■ Trans ■ Female

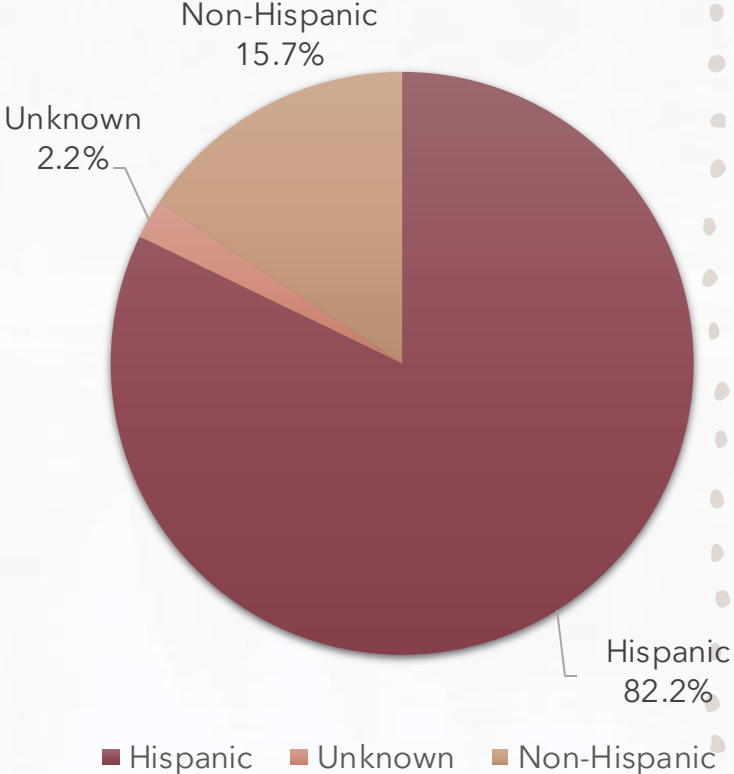
Demographics

All Participants

RACE

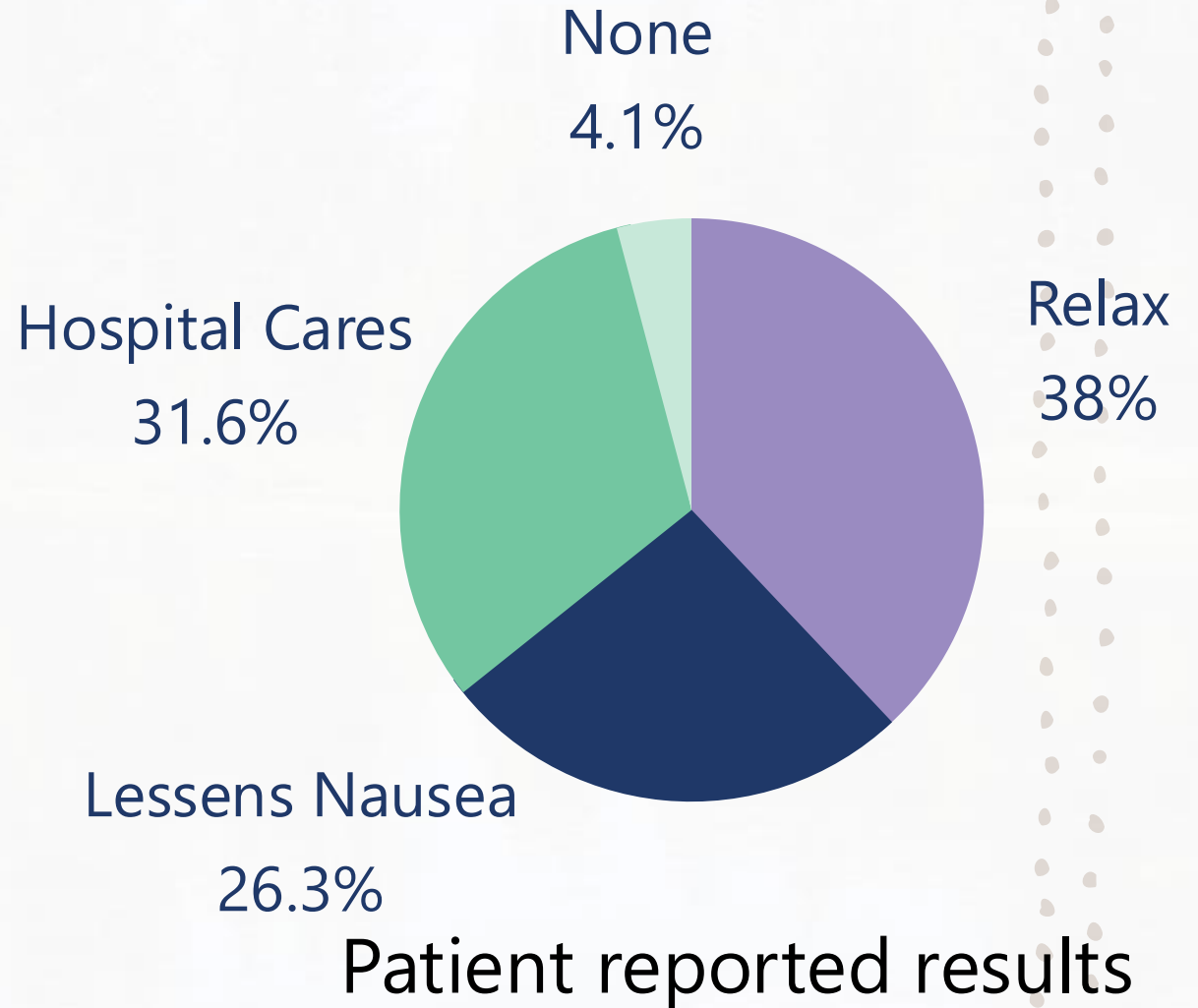
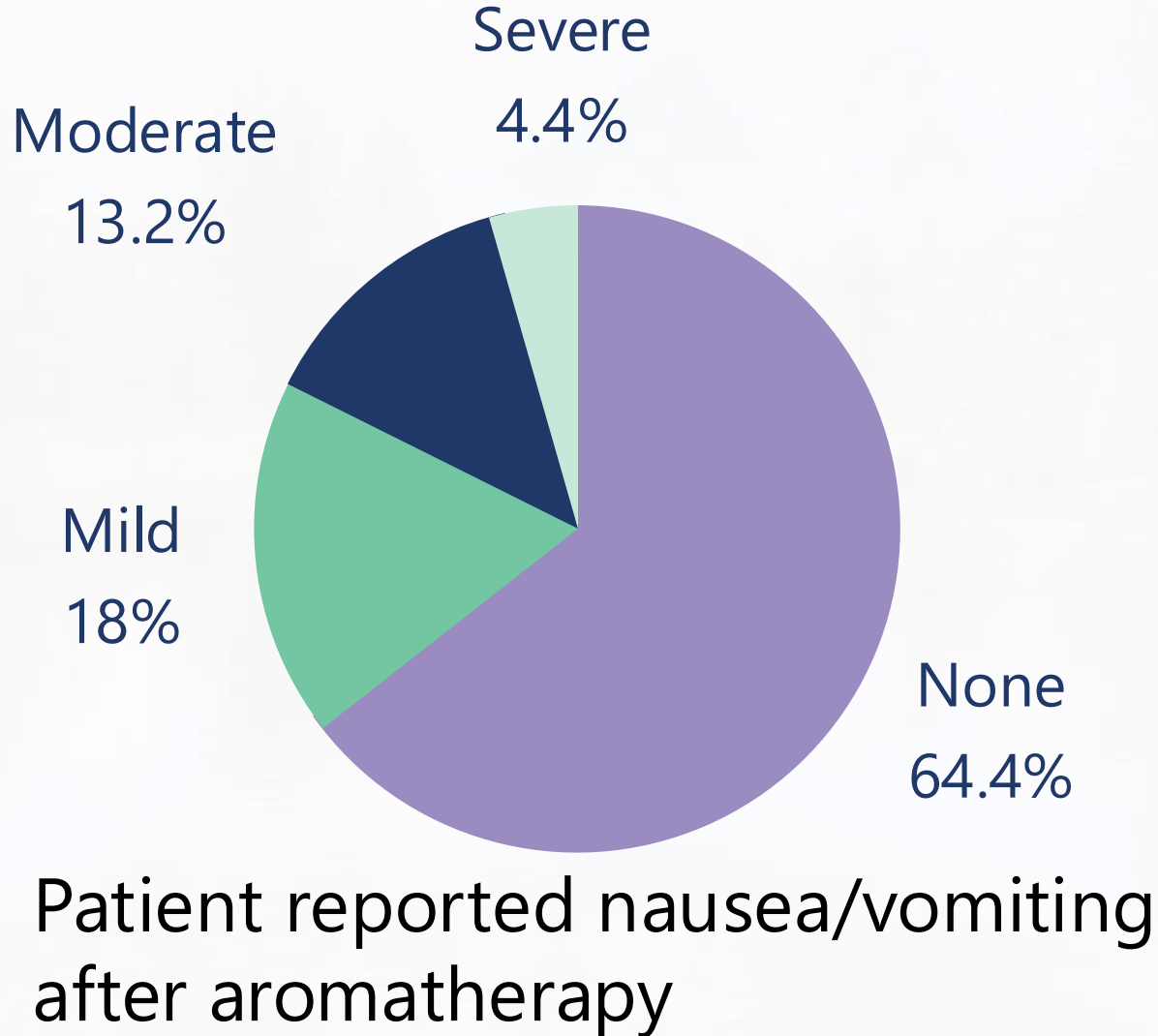


Ethnic Group



Perceived Effectiveness

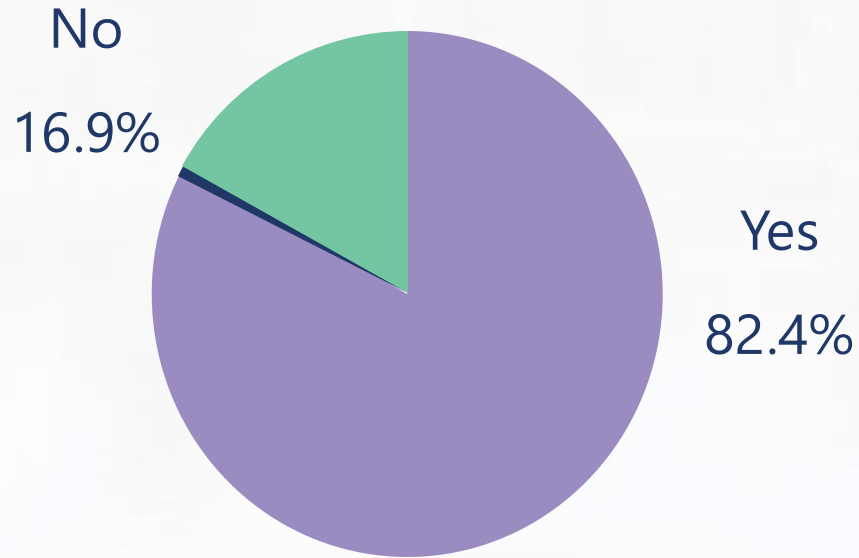
All Participants



Patient Experience

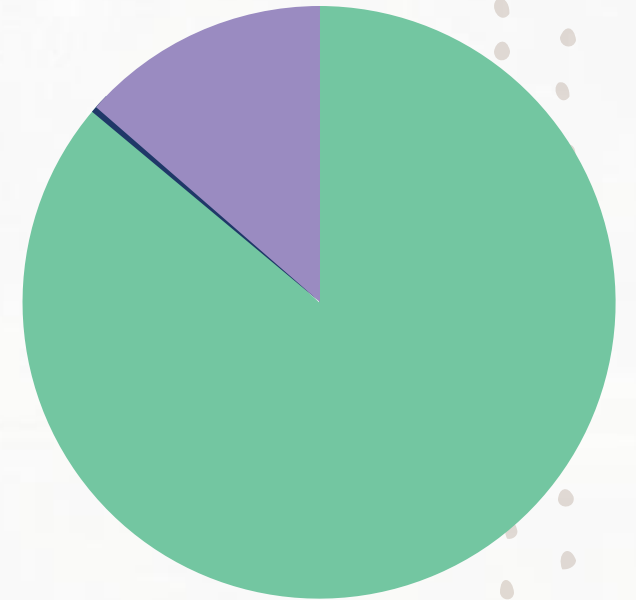
All Participants

Did aromatherapy improve your experience today?



No
13.6%

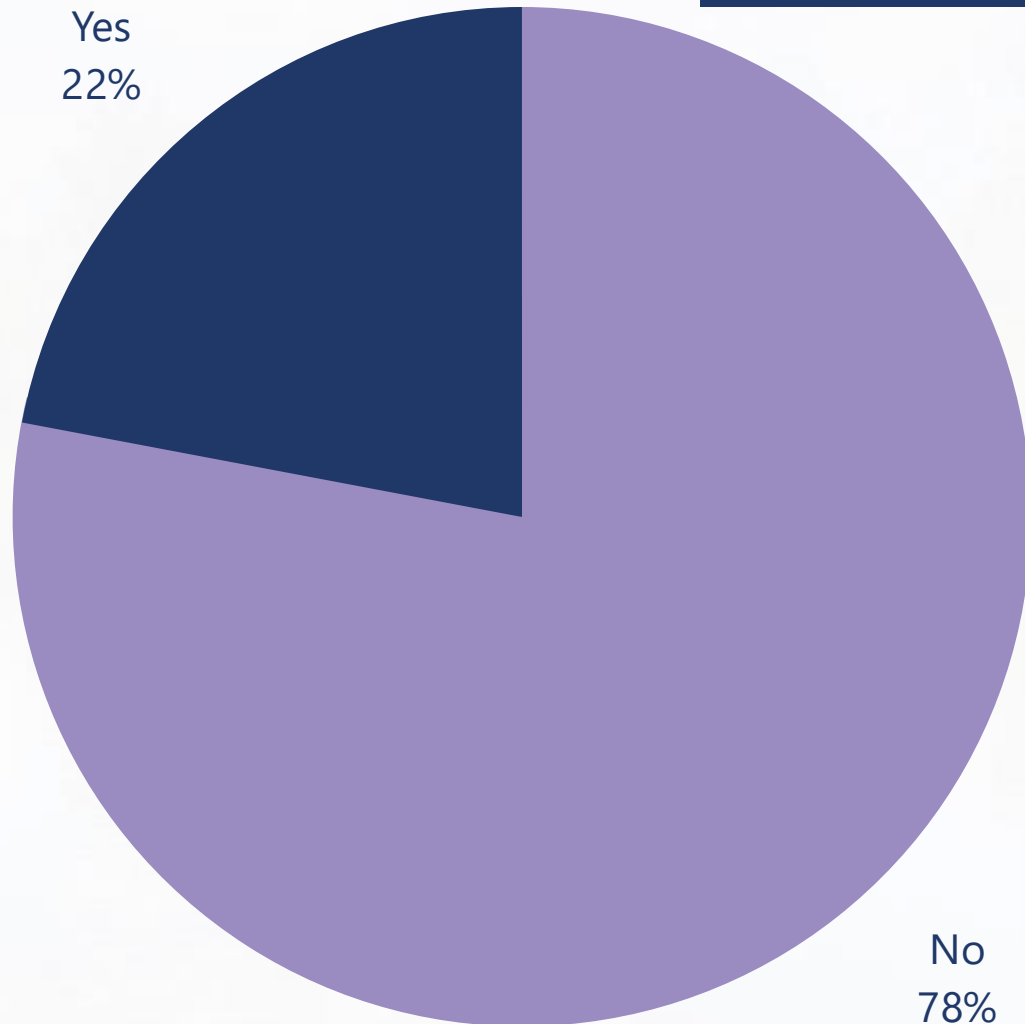
Yes
86.1%



Would you be interested in using aromatherapy in the future?

Antiemetic Administration

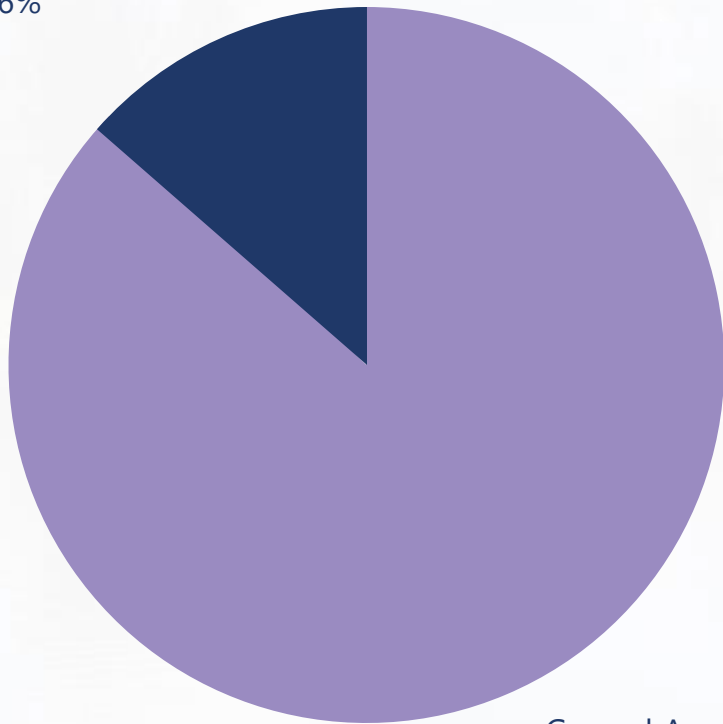
All Participants



	Number of Patients	Total Amount Received
Phenergan	31	218.5 mg
Zofran	32	136 mg
Dexamethasone	4	20 mg
Scopolamine	2	2 mg

Perceived Nausea/Vomiting Score by Anesthesia Type

Monitored Anesthesia Care
13.6%

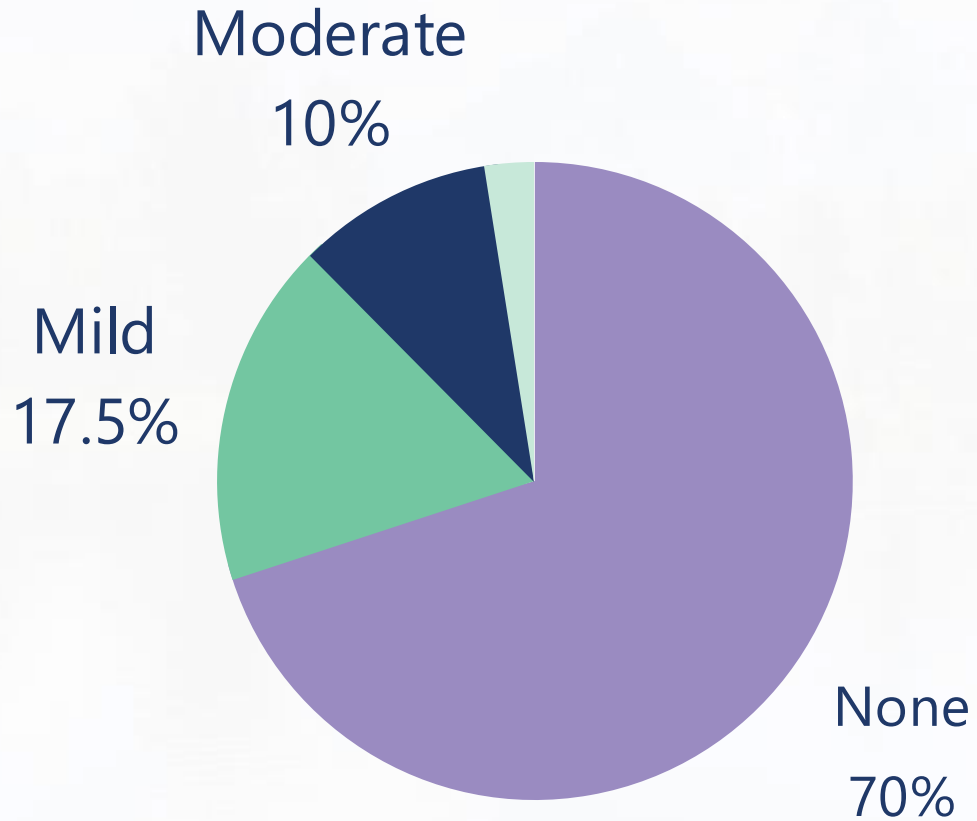


General Anesthesia
86.4%

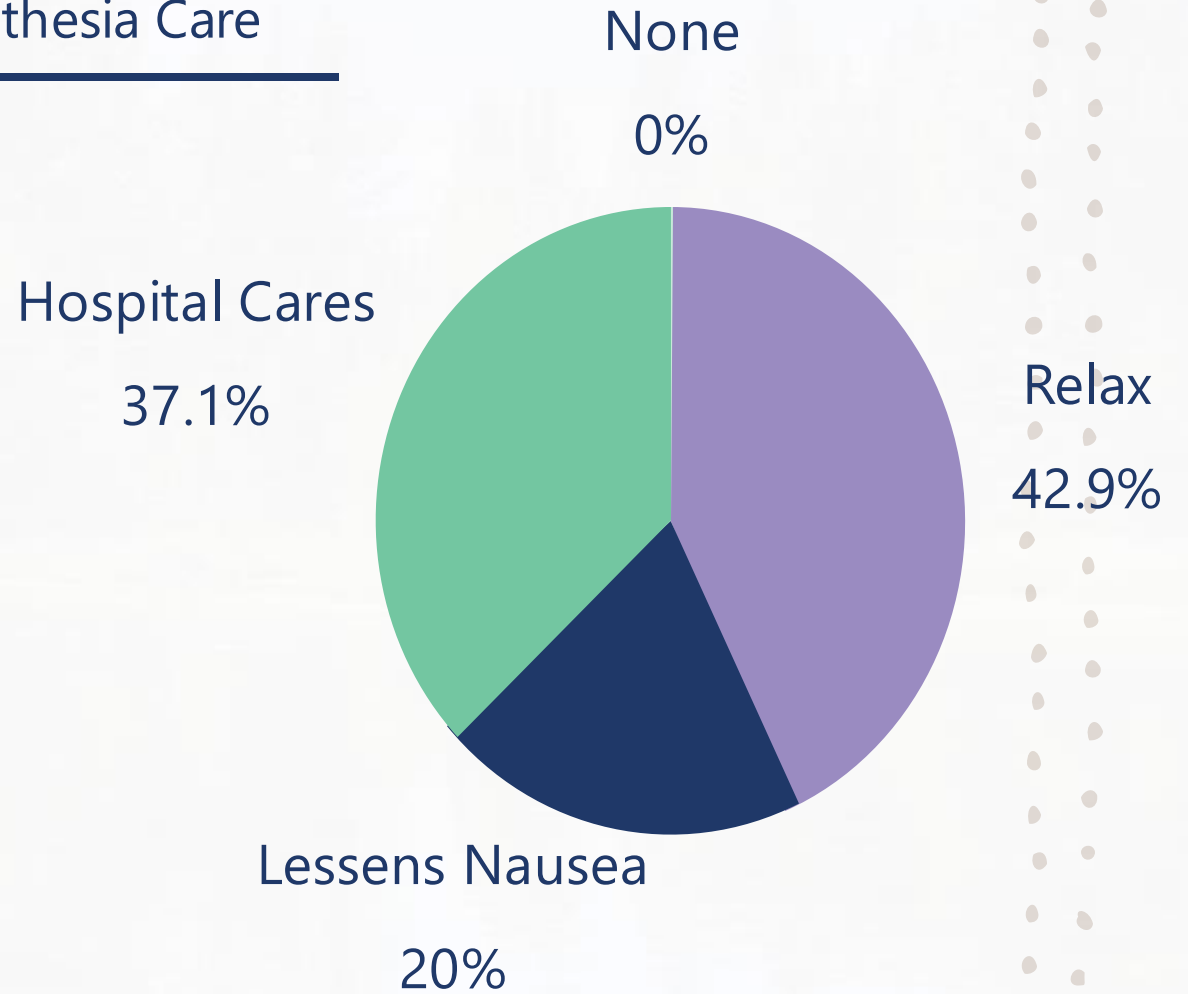
	Patient Reported Nausea/Vomiting Score After Aromatherapy (Scale 0 – 10)
All Participants	1.37
Monitored Anesthesia Care	0.93
General Anesthesia	1.44

Perceived Effectiveness

Monitored Anesthesia Care



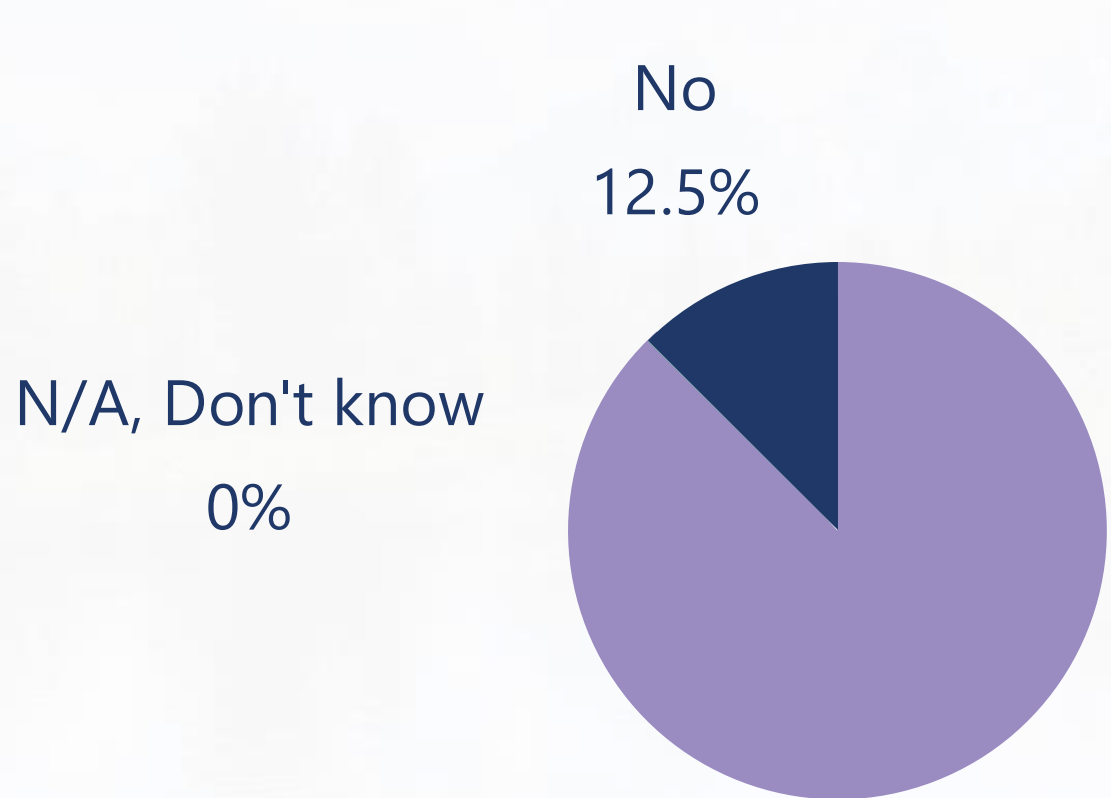
Patient reported nausea/vomiting after aromatherapy



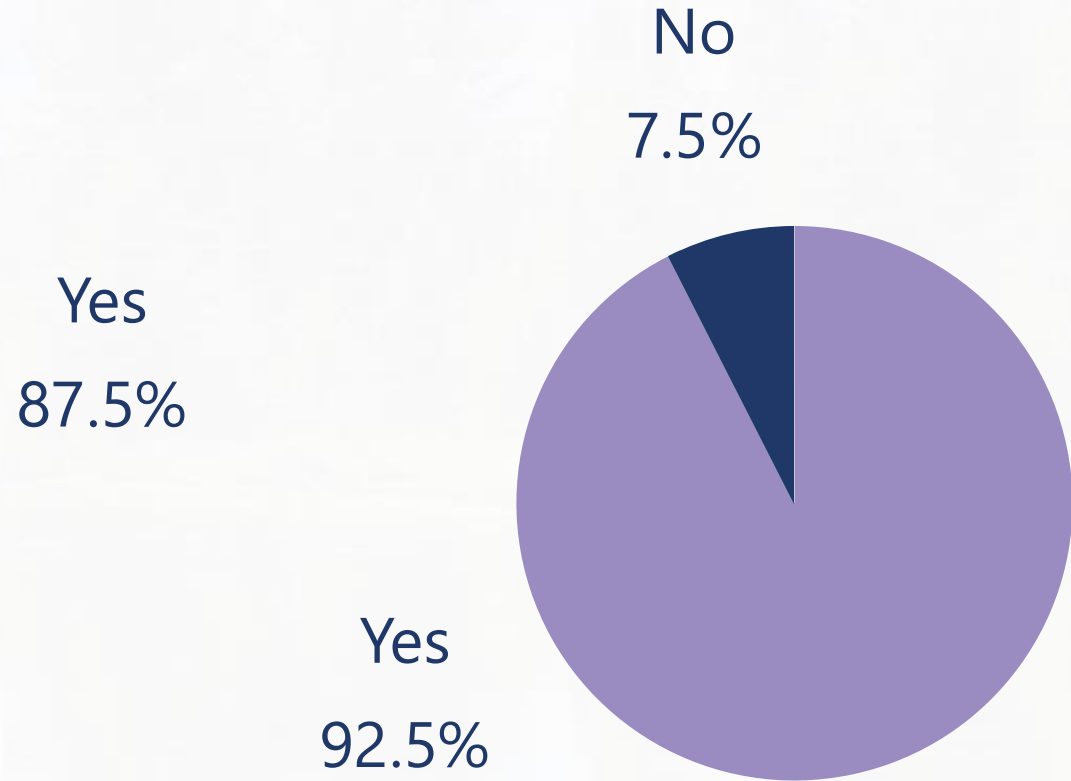
Patient reported results

Patient Experience

Monitored Anesthesia Care



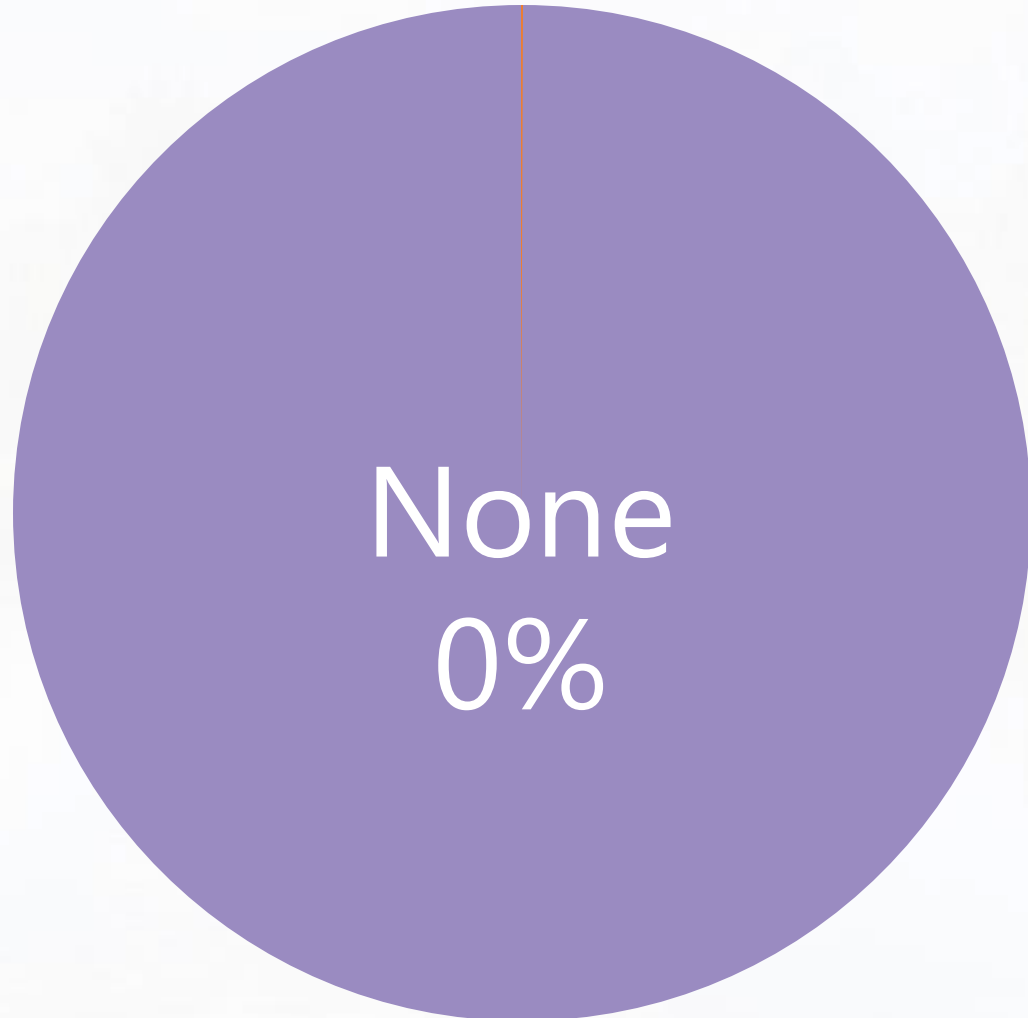
Did aromatherapy improve your experience today?



Would you be interested in using aromatherapy in the future?

Antiemetic Administration

Monitored Anesthesia Care- Experimental Group



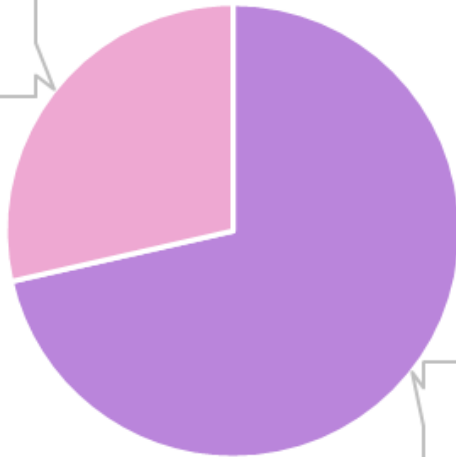
	Number of Patients	Total Amount Received
Phenergan	0	0 mg
Zofran	0	0 mg
Dexamethasone	0	0 mg
Scopolamine	0	0 mg

Antiemetic Administration

Monitored Anesthesia Care- Comparable Group

Did the Patient Require a 2nd Dose of
Antiemetic?

Yes
40%

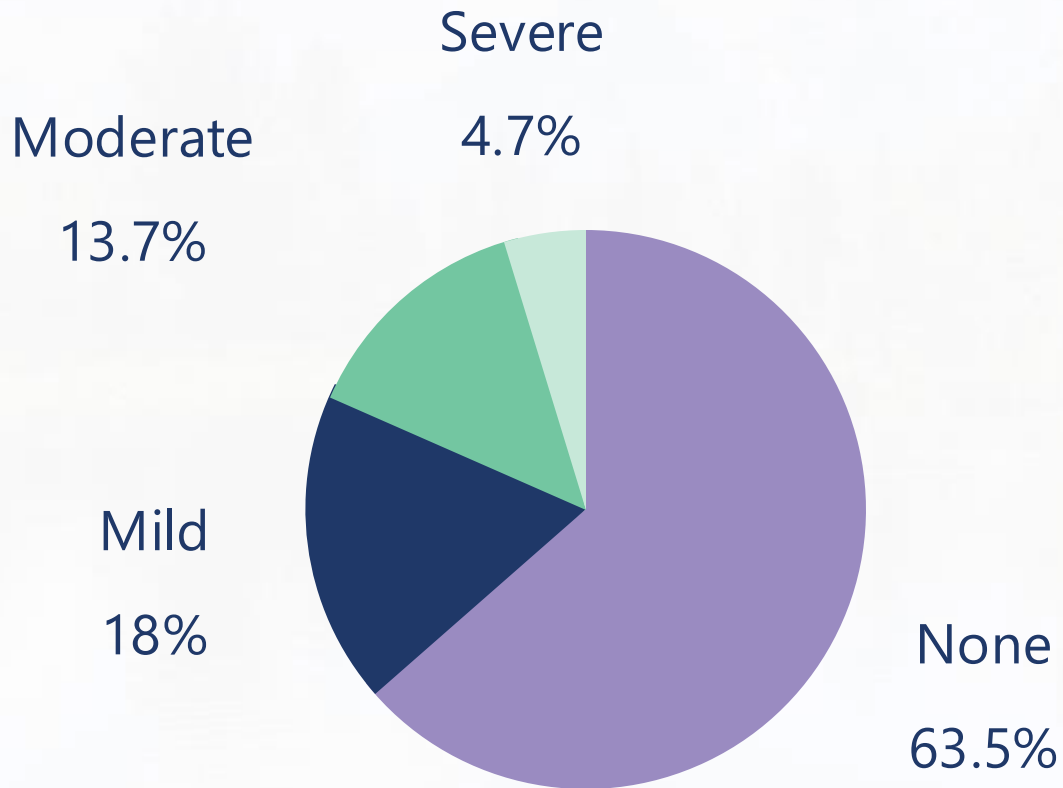


No
60%

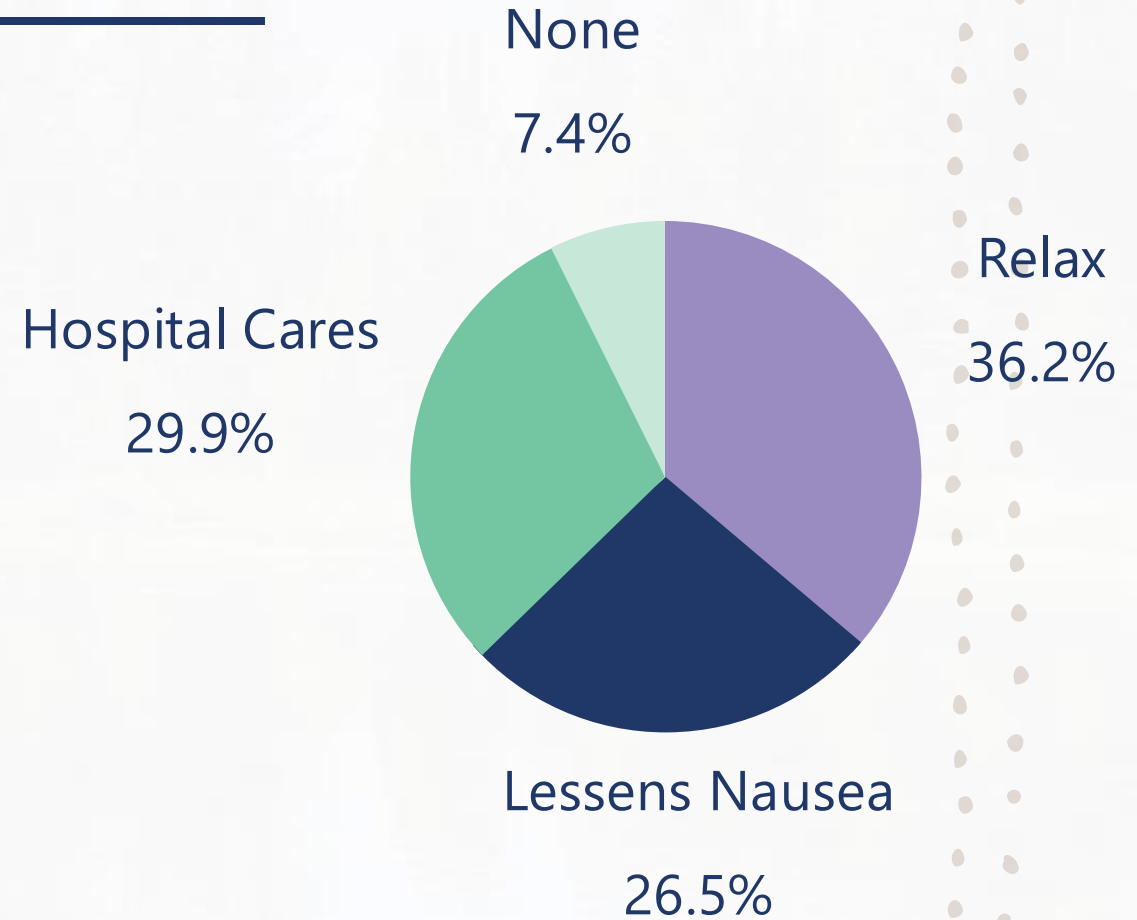
	Number of Patients	Total Amount Received
Phenergan	11	6.25 mg
Zofran	4	16 mg
Dexamethasone	2	10 mg
Scopolamine	0	0 mg

Perceived Effectiveness

General Anesthesia



Patient reported nausea/vomiting after aromatherapy

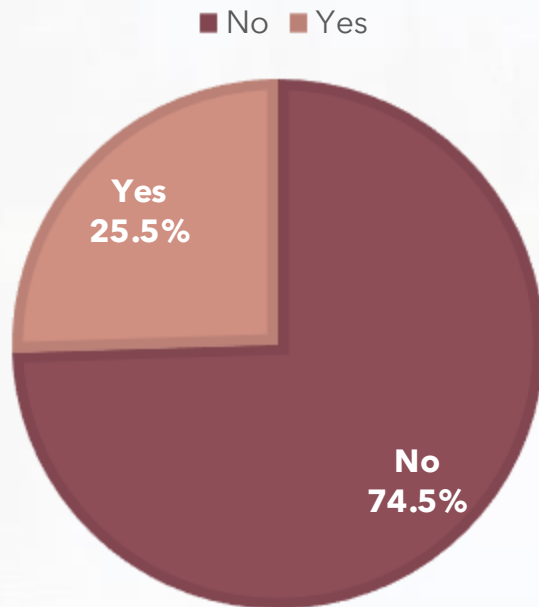


Patient reported results

Antiemetic Administration

General Anesthesia

DID THE PATIENT REQUIRE A 2ND DOSE OF ANTIEMETIC?

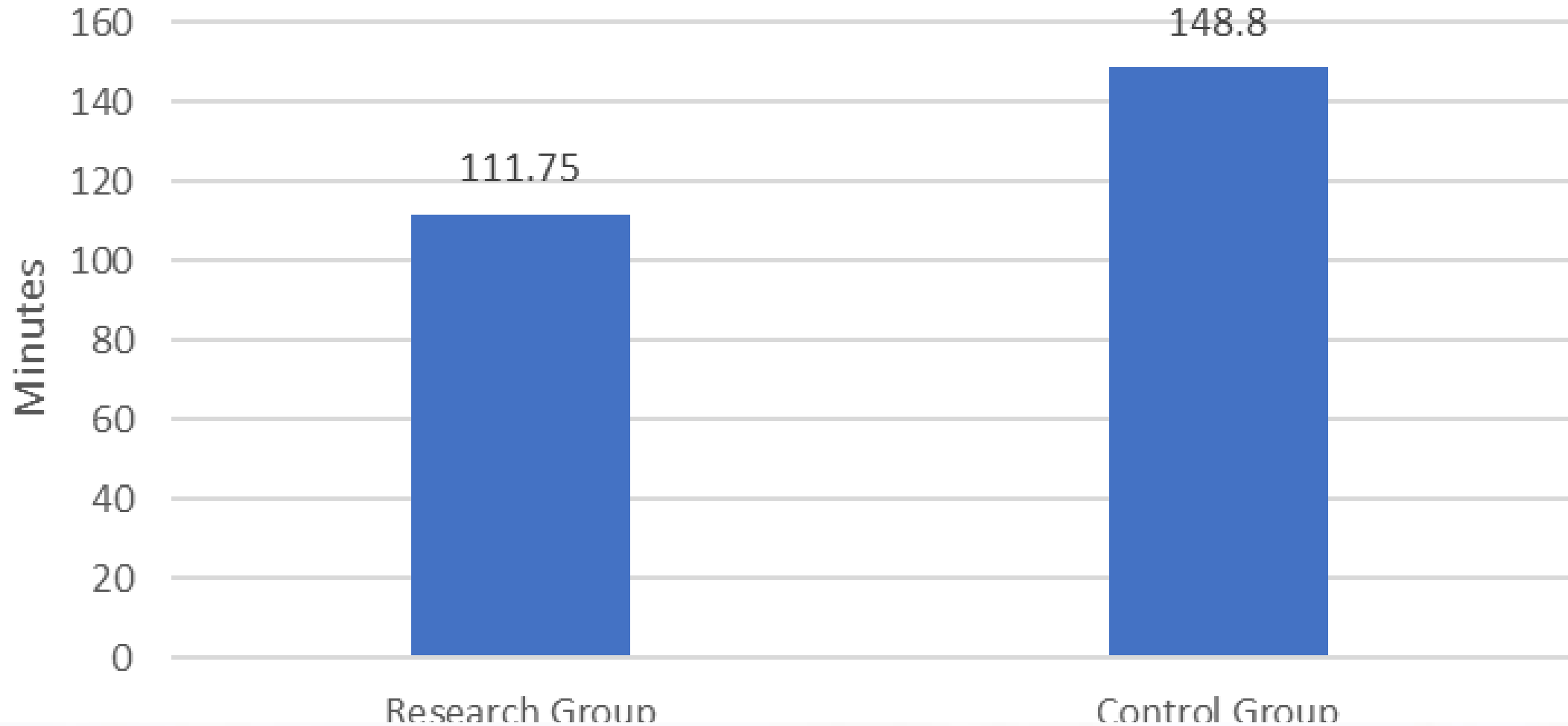


	Number of Patients	Total Amount Received
Phenergan	31	218.5 mg
Zofran	32	136 mg
Dexamethasone	4	20 mg
Scopolamine	2	2 mg

Monitored Under Anesthesia had no second doses of antiemetics given in PACU

PACU STAY TIME

Average Stay time in PACU in Minutes





Summary

Aromatherapy is an alternative therapy that can benefit the well-being of the healthcare workforce and patient populations in the inpatient and outpatient setting.

These projects have shown the benefit of the use of aromatherapy as an alternative medicine and complement to traditional care. It is cost-effective and a proven best-practice management tool for multiple symptoms.



The way to get started
is to quit talking and
begin doing.

-Walk Disney



THANK YOU!

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References

- Brown, L., Danda, L., & Fahey, T. J. (2018). A Quality Improvement Project to Determine the Effect of Aromatherapy on Postoperative Nausea and Vomiting in a Short-Stay Surgical Population. *AORN Journal*, 108(4), 361–369. <https://doi.org/10.1002/aorn.12366>
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