

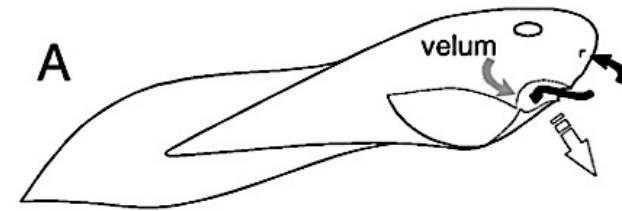
SURVEY OBJECTIVES

- Understand healthcare provider (HCP) perception of the burden of clinically significant hiccups (CSH) in cancer patients
- Identify unmet needs in the treatment of clinically significant hiccups
- CSH are defined as "hiccups persisting for longer than 48 hours or hiccups incident to a cancer or cancer treatment (including supportive care) that warrant a medical treatment or intervention, regardless of how long the hiccups persist."

BACKGROUND

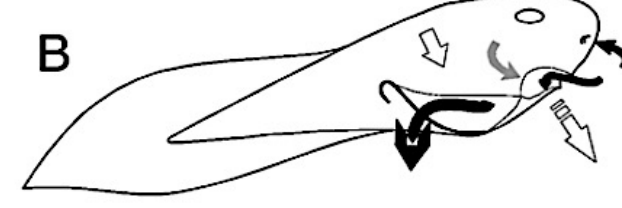
Inspiration

"Buccal Expansion"



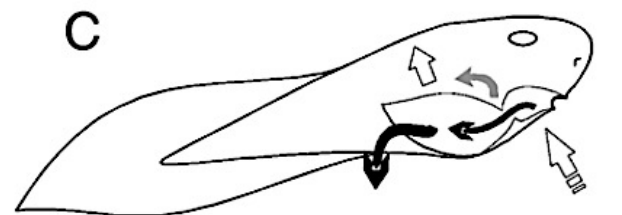
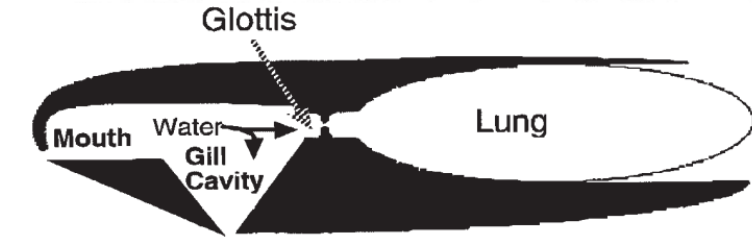
Inspiration / Expiration

"Buccal Expansion / Pharyngeal Compression"



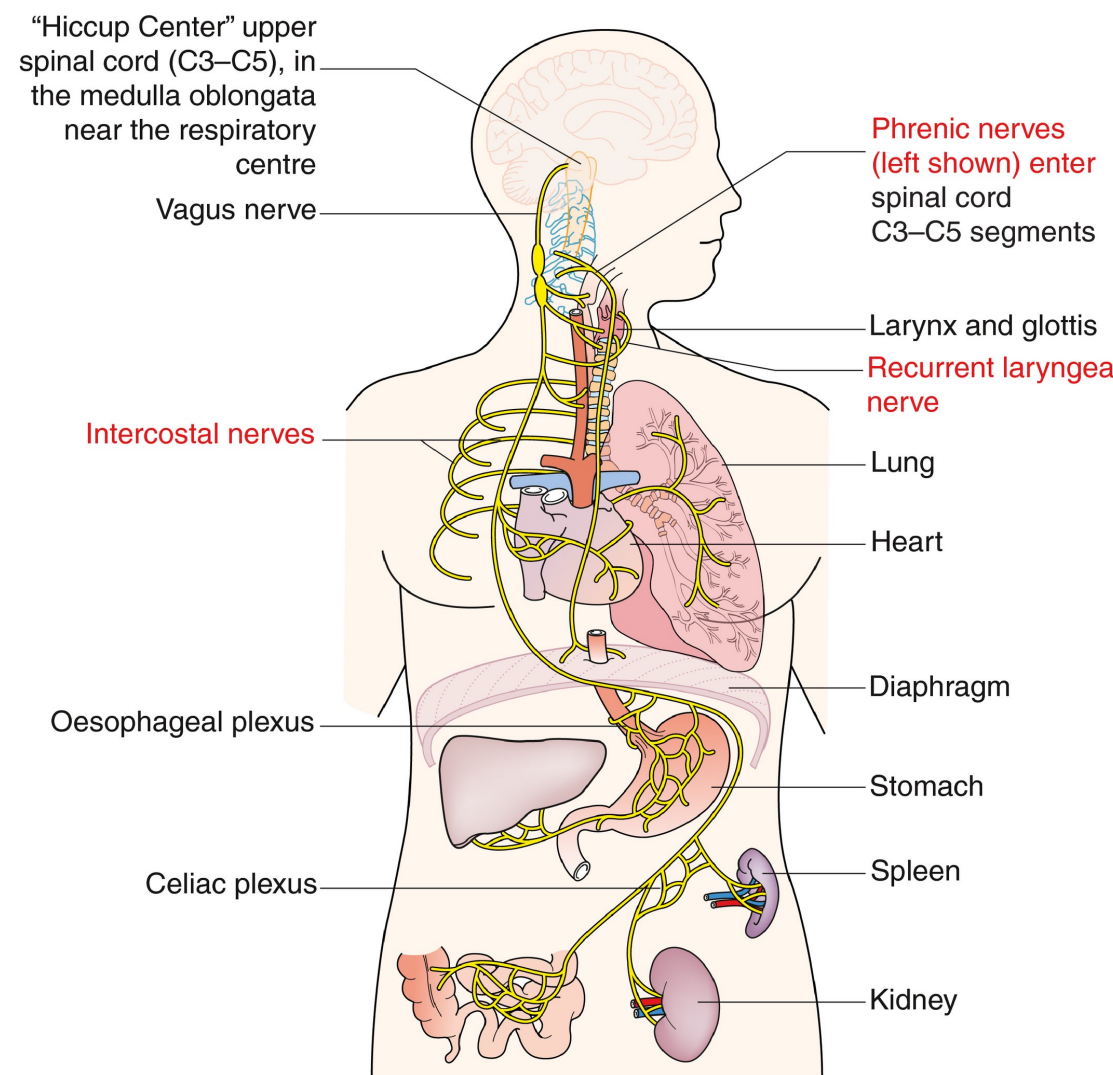
Expiration

"Buccal Compression / Pharyngeal Expansion"



Gill Ventilation¹

Hiccup Reflex Arc²

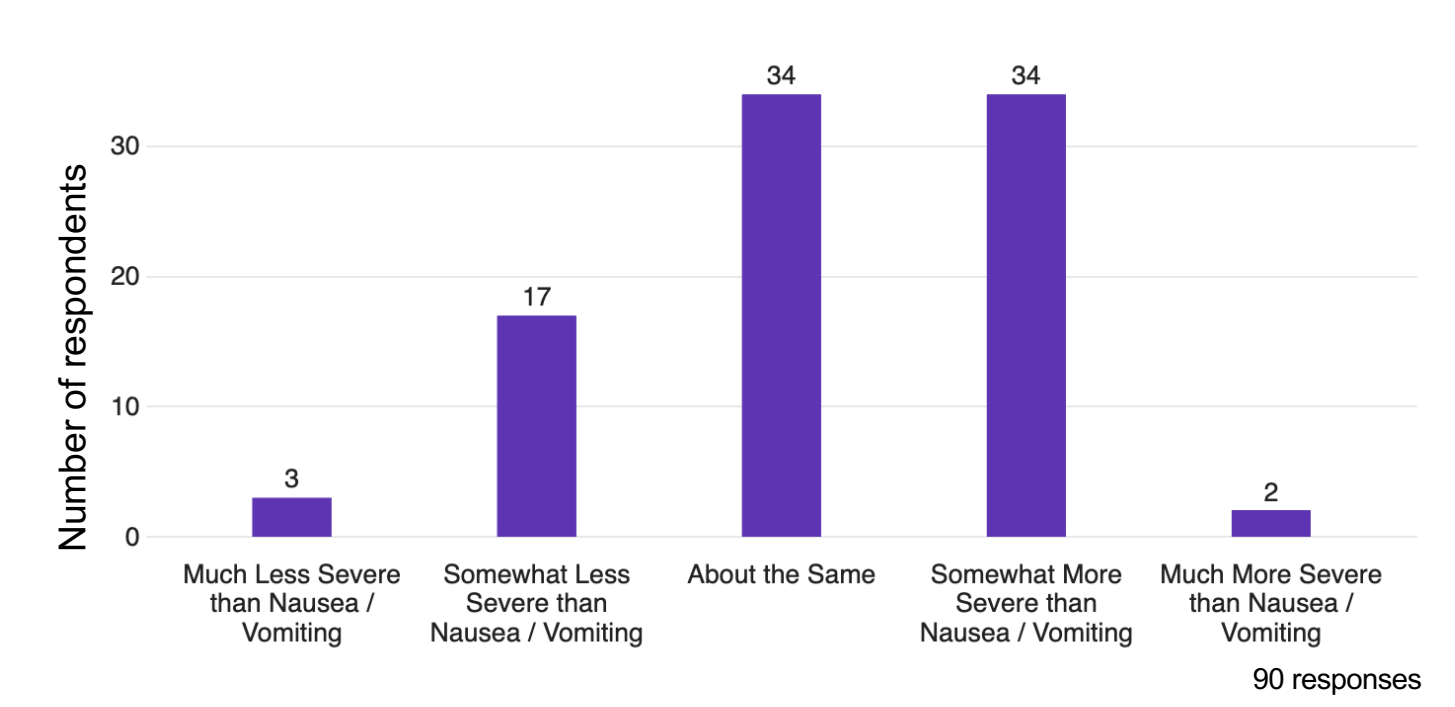
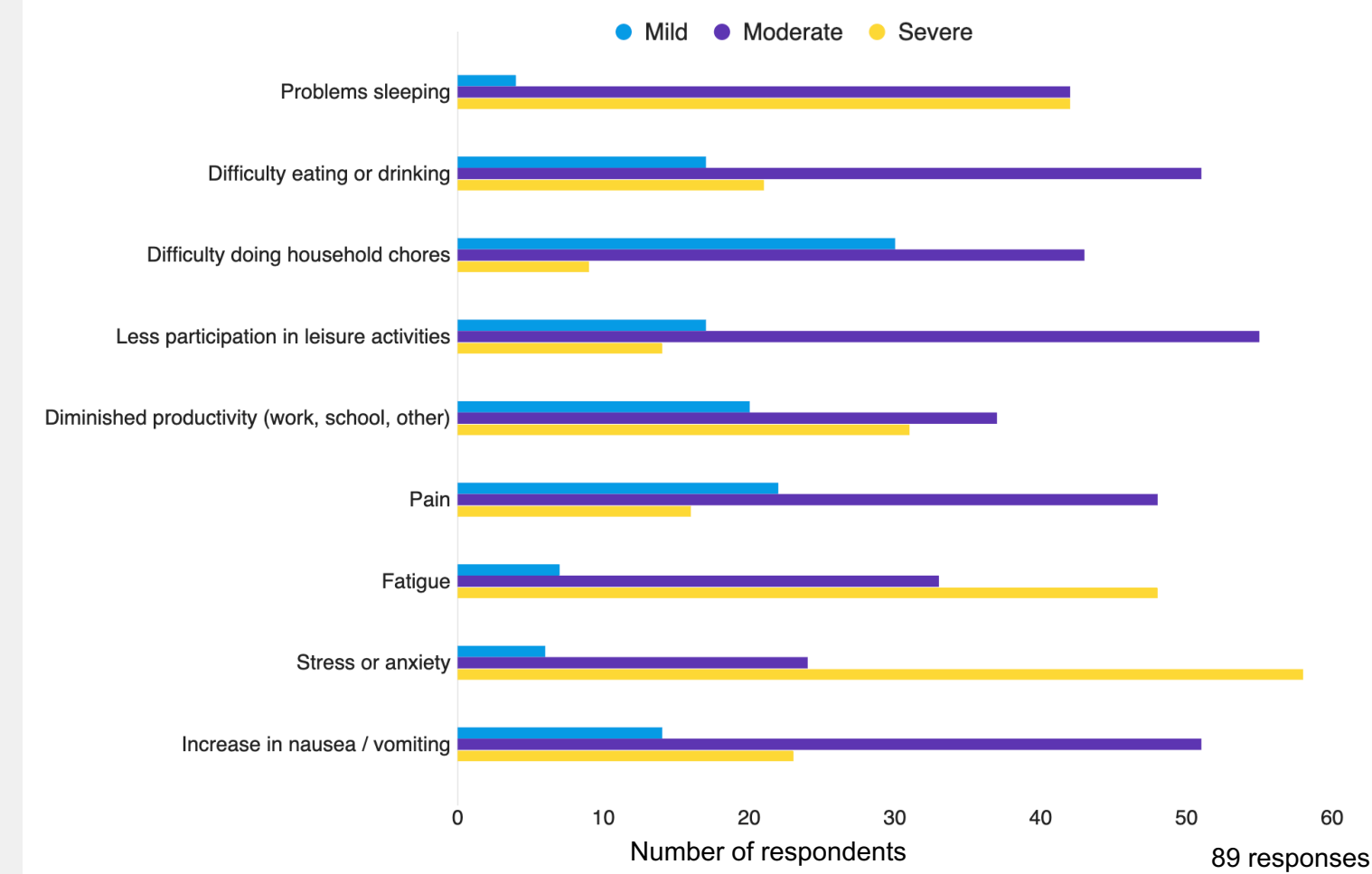


RESULTS

Activity / QOL	Mean	SD	Median	Min	Max
Stress or anxiety	68	19	70	10	100
Fatigue	65	19	70	10	100
Problems sleeping	61	18	60	10	100
Increase in nausea / vomiting	55	23	50	10	100
Diminished productivity (work, school, other)	55	23	60	10	100
Difficulty eating or drinking	54	24	50	10	90
Less participation in leisure activities	51	21	50	10	90
Difficulty doing household chores	41	22	40	0	80
Pain	47	24	50	10	100

*Individual answers in increments of 10 percentage points

89 responses



Burden

- 89% agreed hiccups can be a significant problem for some cancer patients
- 82% agreed that new treatment options are needed
- Stress or anxiety (mean 68% of patients), fatigue (65%), and problems sleeping (61%)
- For patients with CSH and nausea/vomiting, CSH severity rated the same or greater by 78% of respondents

Current Treatment

- On average, HCPs utilized a prescription pharmaceutical 50% of the time for initial management of CSH

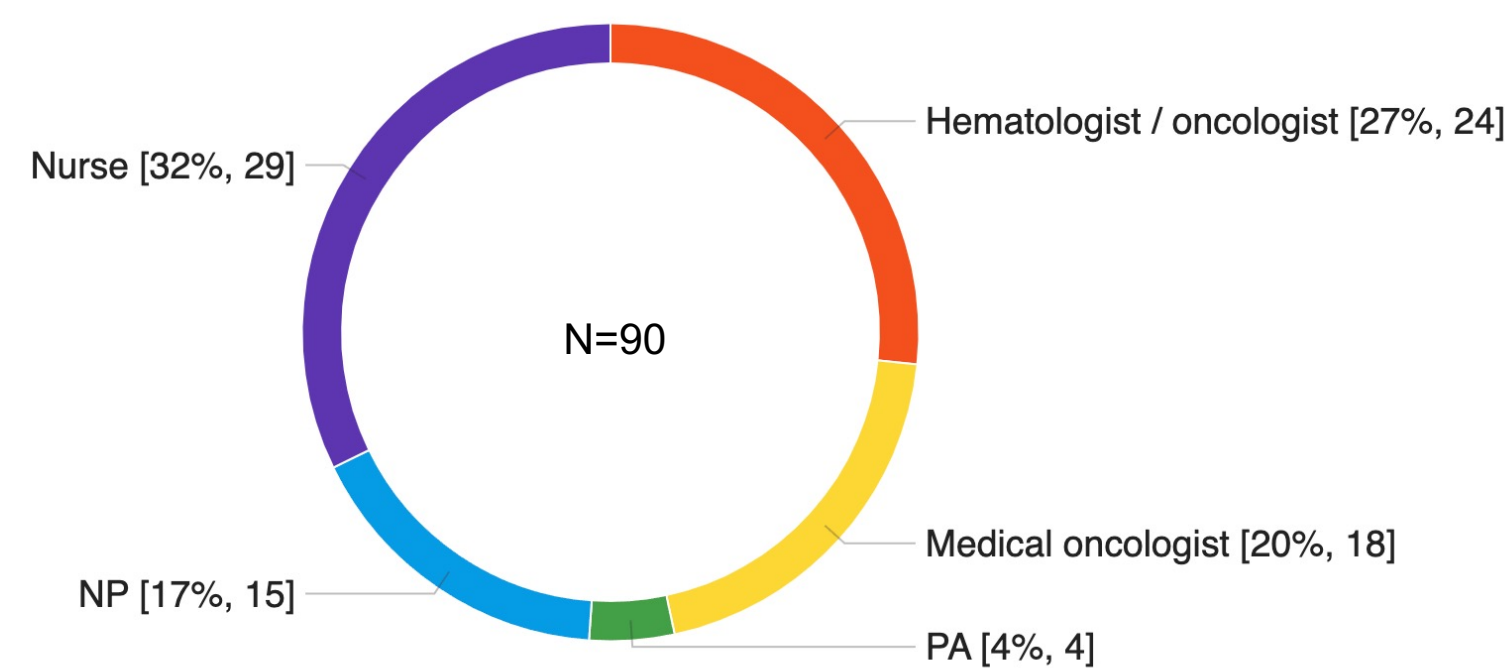
Unmet Needs

- 89% of HCPs would utilize a safe, efficacious, and affordable new treatment
- Fast onset of action and robust efficacy were ranked most important attributes of a new therapy
- Better awareness of treatment safety/efficacy, impact on QOL, and risk factors

Health Care Providers (HCPs), Nurse Practitioners (NPs), Physician Assistants (PAs), clinically significant hiccups (CSH)

METHODS

Participants Completing the Survey*



*Nurse Practitioners (NPs), Physician Assistants (PAs)

Participant Areas of Focus # Participants

Hematologic malignancies	78
Gastrointestinal	68
Lung	63
Supportive care	60
Breast	58
Melanoma / skin cancers	56
Genitourinary	52
Head and neck	49
Endocrine / Neuroendocrine	46
Gynecologic	43
Sarcoma	36
Central nervous system tumors	35
Other	2

UNMET NEED CONCLUSIONS

Hiccups can be a significant problem for some cancer patients



For patients with clinically significant hiccups, new treatment options are needed



I would utilize a new treatment for my patients with clinically significant hiccups (shown to be safe, efficacious, and affordable)



90 responses

● Strongly agree ● Agree ● Somewhat agree ● Slightly agree ● Do NOT agree

BACKGROUND REFERENCES

- Gargaglioni, L. H., & Milsom, W. K. (2007). Control of breathing in anuran amphibians.
- Steger, M., Schneemann, M., & Fox, M. (2015). Systemic review: the pathogenesis and pharmacological treatment of hiccups. Bacak, B. J. (2022). *Hiccups Are A "Respiratory Arrhythmia"*. Ehret, C. J. A., Y.; Le Rademacher, J.G.; et al. (2022). Hiccups in patients with cancer: a multi-site, single-institution study of etiology, severity, complications, interventions, and outcomes. Ehret, C., Young, C., Ellefson, C. J., Aase, L. A., & Jatoi, A. (2022). Frequency and Symptomatology of Hiccups in Patients With Cancer. Hendrix, K. W., D.; Kievman, M.J.; Jatoi, A. (2019). Perspectives on the Medical, Quality of Life, and Economic Consequences of Hiccups. Obuchi, T., Makimoto, Y., & Iwasaki, A. (2020). Preliminary experimental outcomes of induced hypercapnia in treatment of obstinate singultus. Rajagopalan, V. e. (2021). Hiccups neurocritical care.