

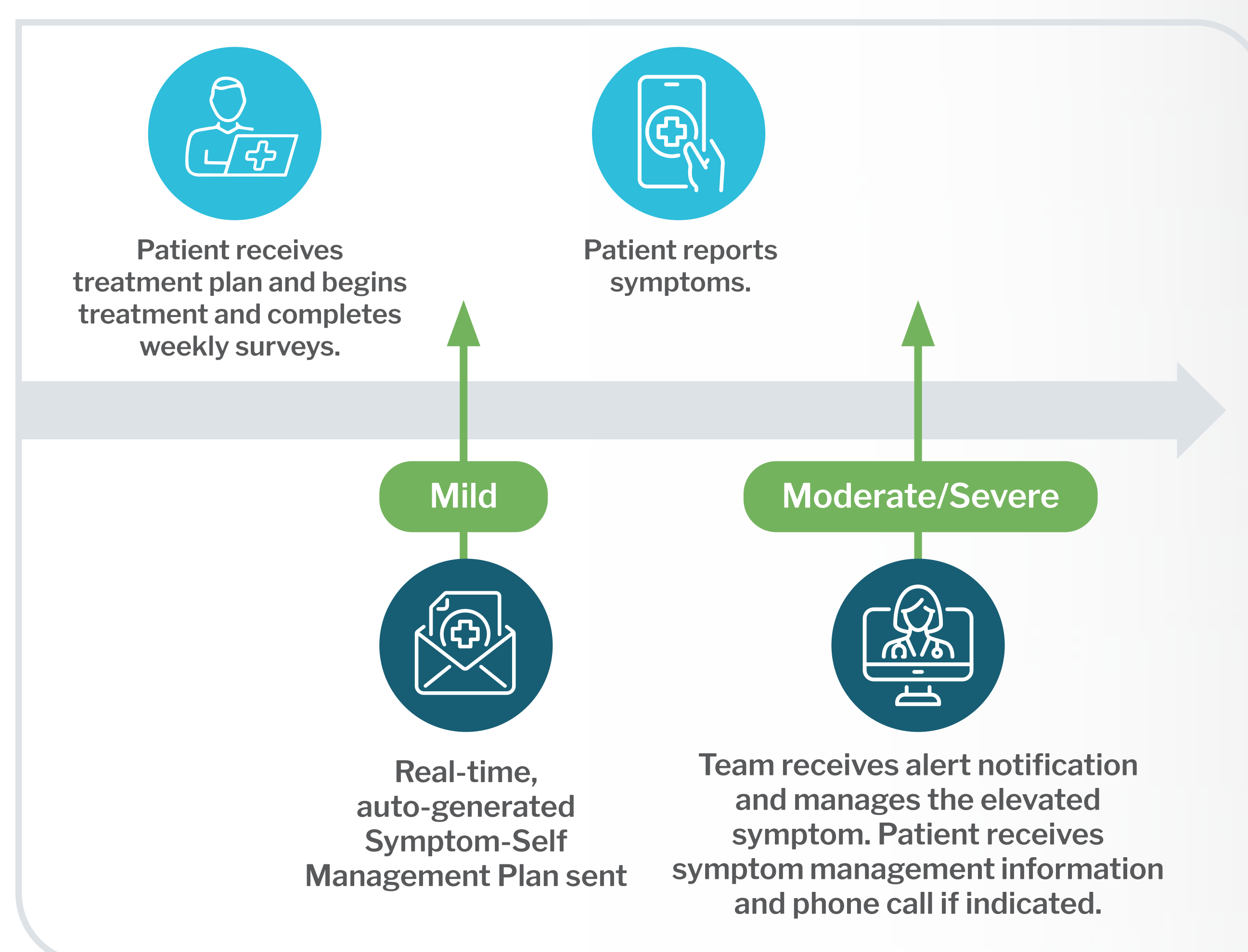
## BACKGROUND

- Multiple studies have shown proactive symptom management in response to patient-reported outcomes (PROs) reduces symptom burden, decreases healthcare resource utilization, and improves survival.<sup>1,2,3</sup>
- Breast cancer patients may experience debilitating physical and psychological symptoms while on treatment, which underscores the need for ongoing symptom monitoring.
- Remote symptom monitoring (RSM) platform enables capture of PROs from home<sup>4</sup> and sends PROs results directly to the electronic medical record (EMR) to inform the healthcare team and monitor patient status.
- An alert system can be created in the RSM platform to flag the healthcare team when symptoms worsen and require clinical intervention prior to the next clinic visit.
- This research aims to characterize the clinical actions implemented by the healthcare team in response to symptom alerts reported by women who received breast cancer treatment in real-world settings.

## METHODS

- Women undergoing breast cancer treatment enrolled in Carevive PROMpt®, an RSM platform, between September 2020 and November 2023 were included.
- Patients received weekly surveys to report any symptoms (derived from PRO-CTCAE®) experienced during treatment. When a patient reported a moderate or severe symptom, an algorithm-based system would generate an “alert” notification to the healthcare team.
- The healthcare team reviewed the alert, interacted with the patient, and recorded the response using a drop-down list of actions in the platform.
- Patients were followed from the baseline survey completion to the last completed survey or end of study period (whichever is earliest).
- Clinical actions documented were described and further free-text exploration of clinical notes were conducted to characterize the actions implemented.

Figure 1: Carevive PromPT® Remote Symptom Alerts

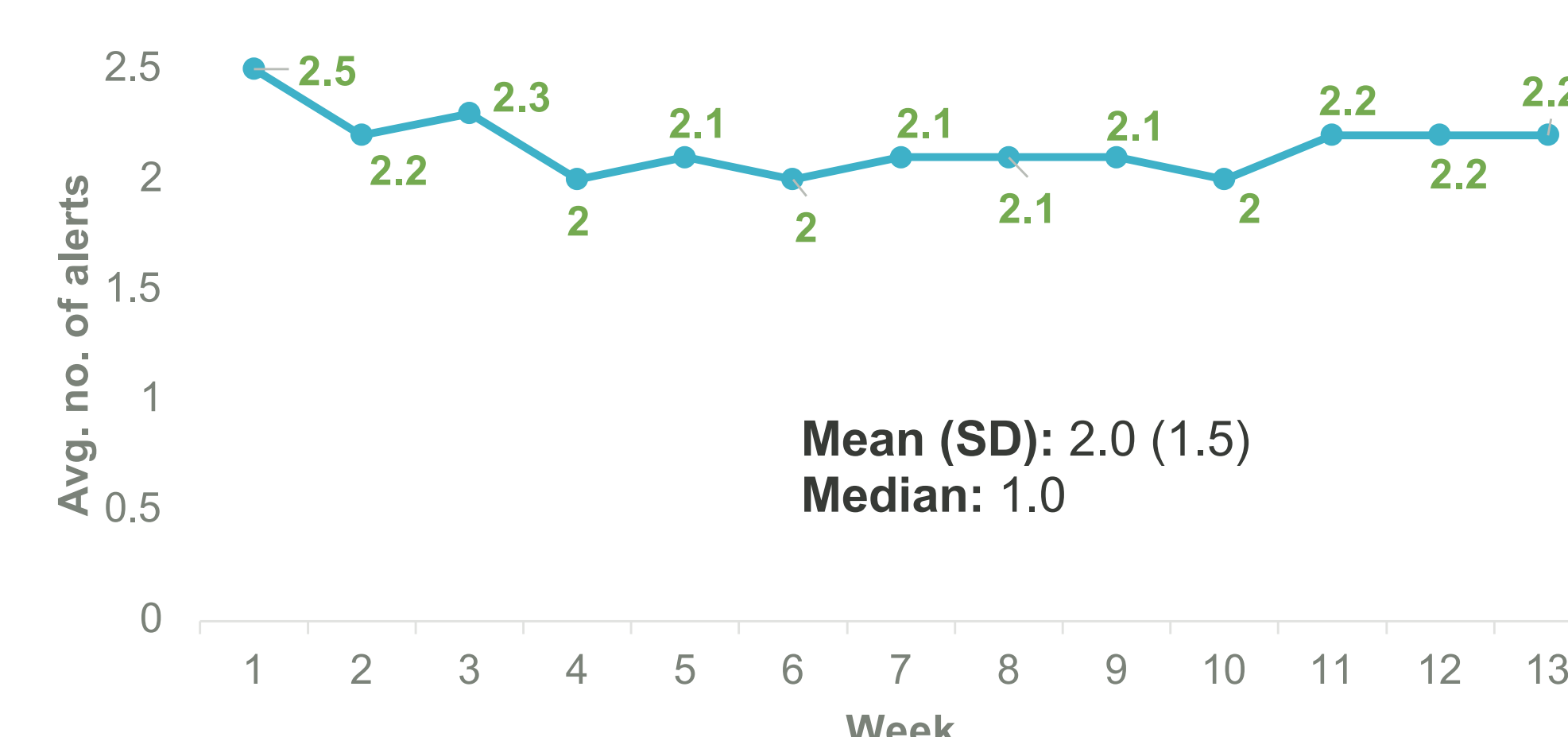


## RESULTS

Table 1: Demographic and Baseline Characteristics

	All patients (n = 646)	Had ≥1 symptom alerts (n=519)
No. of patients who generated at least one symptom alerts, n (%)	519 (80.3)	519 (100)
No. of alerts generated during observation period	7,641	7,641
No. of symptoms reported during observation period	19,425	18,506
PROs follow-up time (weeks), Median	12.3	16.1
Age at enrollment (years), Mean (SD)	55.6 (12.6)	54.8 (12.7)
Median	56	55
Female, n (%)	646 (100)	519 (100)
Race, n (%)		
American Indian or Alaskan Native	7 (1.1)	5 (1.0)
Asian	11 (1.7)	10 (1.9)
Black or African American	132 (20.4)	107 (20.6)
Native Hawaiian or Other Pacific Islander	1 (0.2)	1 (0.2)
White	466 (72.1)	370 (71.3)
Other	9 (1.4)	7 (1.3)
Unknown	20 (3.1)	19 (3.7)
Biomarker status, n (%)		
HR+/HER2-	305 (47.2)	247 (47.6)
HR+/HER2+	100 (15.5)	85 (16.4)
Triple negative	119 (18.4)	90 (17.3)
Unknown	122 (18.9)	97 (18.7)
Stage, n (%)		
0	11 (1.7)	9 (1.7)
I	160 (24.8)	127 (24.5)
II	176 (27.2)	143 (27.6)
III	86 (13.3)	70 (13.5)
IV	124 (19.2)	99 (19.1)
Unknown	89 (13.8)	71 (13.7)
Treatment closest to first symptom alert, n (%)		
Chemotherapy	164 (25.4)	164 (31.6)
Anti-HER2 therapy	101 (15.6)	101 (19.5)
Mono Endocrine therapy (ET)	91 (14.1)	91 (17.5)
PD-1/L1 inhibitors	45 (7.0)	45 (8.7)
CDK 4/6 inhibitors	36 (5.6)	36 (6.9)
Other	33 (5.1)	33 (6.4)
Did not generate alerts	127 (19.7)	0 (0.0)
Unknown	49 (7.6)	49 (9.4)

Figure 2: Average Number of Alerts per Patient over time



## CONCLUSION

- The majority of women undergoing treatment for breast cancer experienced moderate and severe symptoms resulting in alerts being sent to the healthcare team.
- Most alerts generated in this study were addressed by continued monitoring or notification to the clinical team, indicating that patients received assurance that the healthcare team was aware of their status outside of clinical visits.
- Supportive care and medication change provides interventions to address the symptom at home, and to prevent unplanned clinic appointments or further resource utilization.
- A small proportion of resource utilization indicates most symptoms are manageable and appropriate level of intervention is given when needed.
- Future study should explore the differences of alerts clinical actions by therapy class, biomarker, race, and/or stage.

- Over 19,425 symptoms were reported from 646 female breast cancer patients in the cohort with a median follow-up of 12.3 weeks. A total of 7,641 alerts were generated from 80.3% of patients (n=519), **Table 1**.
- Of patients who generated at least one alerts, median age was 55, 71.3% White, 20.6% Black or African American, 19.1% were metastatic, 47.6% HR+/HER2-, 16.4% HR+/HER2+, and 17.3% Triple negative (**Table 1**).
- Chemotherapy, anti-HER2, and mono endocrine therapy were most common therapies while patients triggered their first symptom alerts (**Table 1**).
- Patients generated an average of 2 alerts (SD=1.5) per week, with a median of 1 alert per patient per week (**Figure 2**).
- Distribution of clinical actions following the alert were: clinical team notified (27.6%), continued monitoring (71.6%), supportive care (7.7%), resource utilization (2.5%), and medication change (2.3%). No action needed was noted in 5.6% of alerts and 13.6% of alerts were categorized as “Other” (**Figure 3a**).
- Almost half (48%) of resource utilization involved scheduling a medical appointment, 27% hospitalization, 12% referral to social work, and less than 10% to palliative care, urgent care, psychiatry, or a higher-level care (**Figure 3b**).
- Further exploration of the “Other” category (n=1,039) showed an additional distribution of clinical actions as: supportive care (39.3%), clinical team notified (34.9%), resource utilization (12.3%), medication change (10.8%), unable to reach patients (2.4%), and continued monitoring (0.3%), **Figure 4**.
- Of patients whose alerts were indicated as “no action” (n=212), nearly half of them (48.1%) had indicated no need for call back and 11.3% had no further action due to reported improvements in their symptoms (**Figure 5**).

Figure 3a: Distribution of Clinical Actions Documented in Response to Symptom Alerts (n=7,641 alerts)

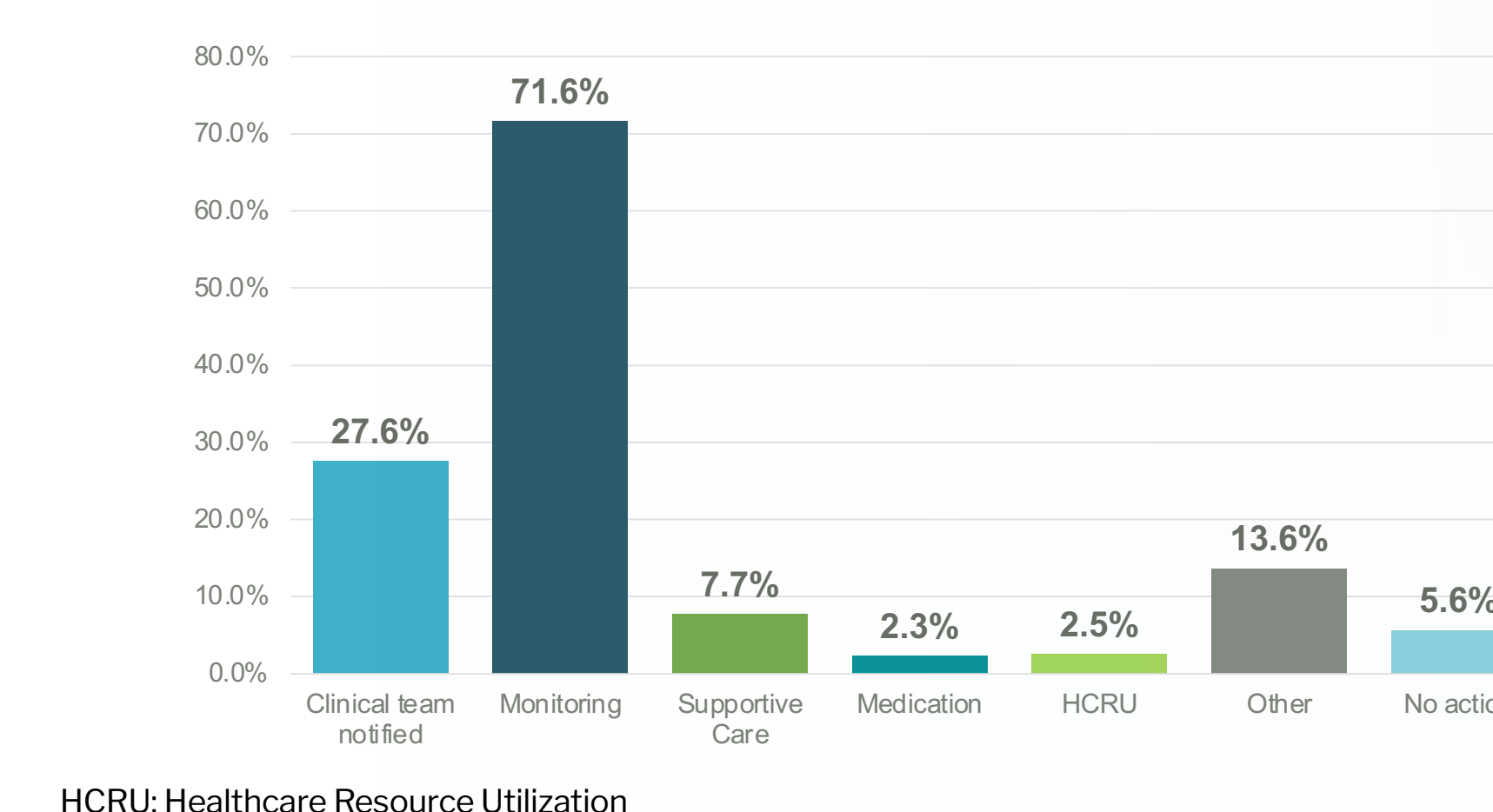
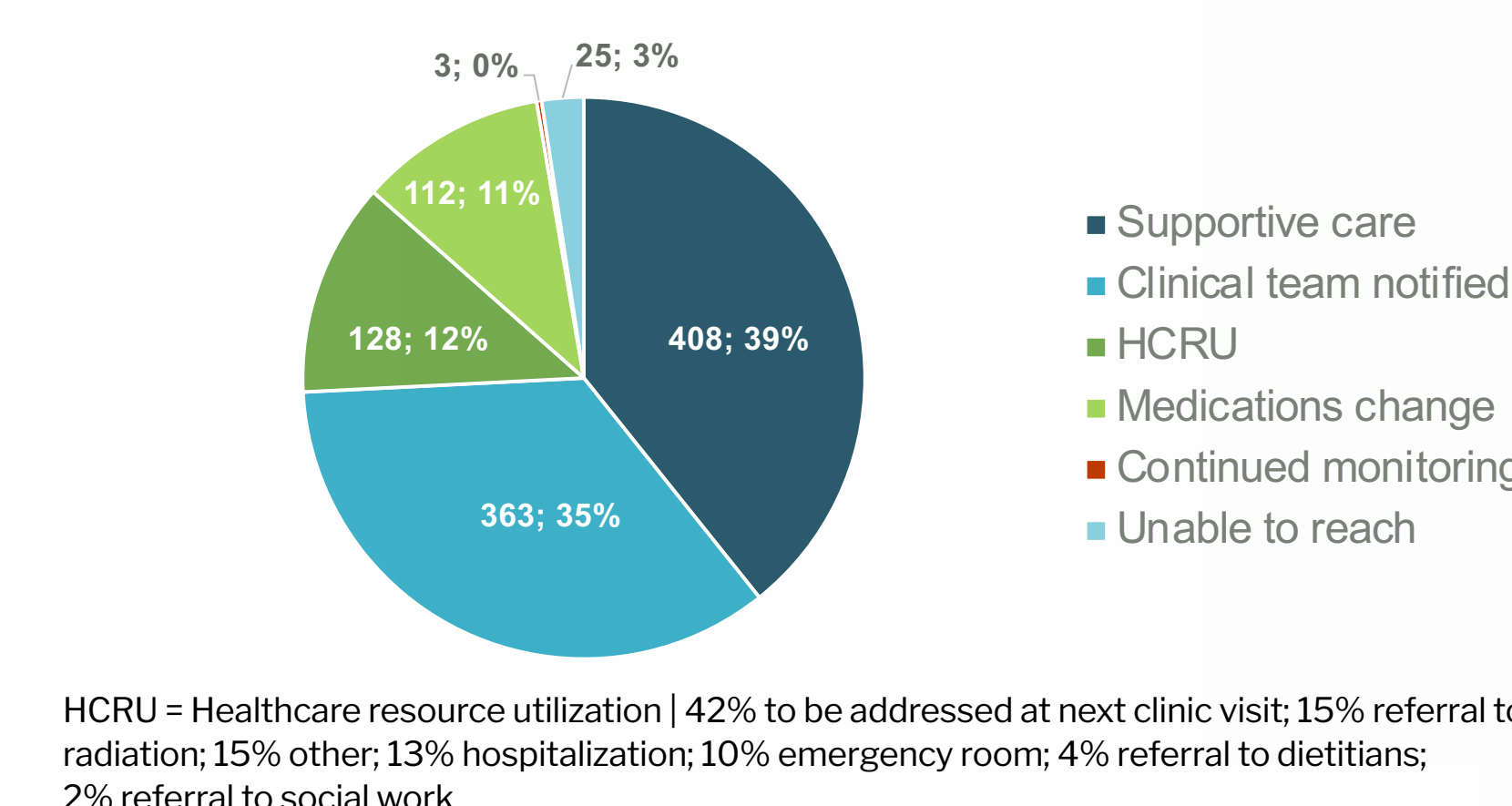


Figure 4: Further exploration of the “Other” Clinical Actions Category (n=1,039 alerts)



HCRU = Healthcare resource utilization | 42% to be addressed at next clinic visit; 15% referral to radiation; 15% other; 13% hospitalization; 10% emergency room; 4% referral to dietitians; 2% referral to social work

Figure 3b: Healthcare Resource Utilization Type (n=191 alerts)

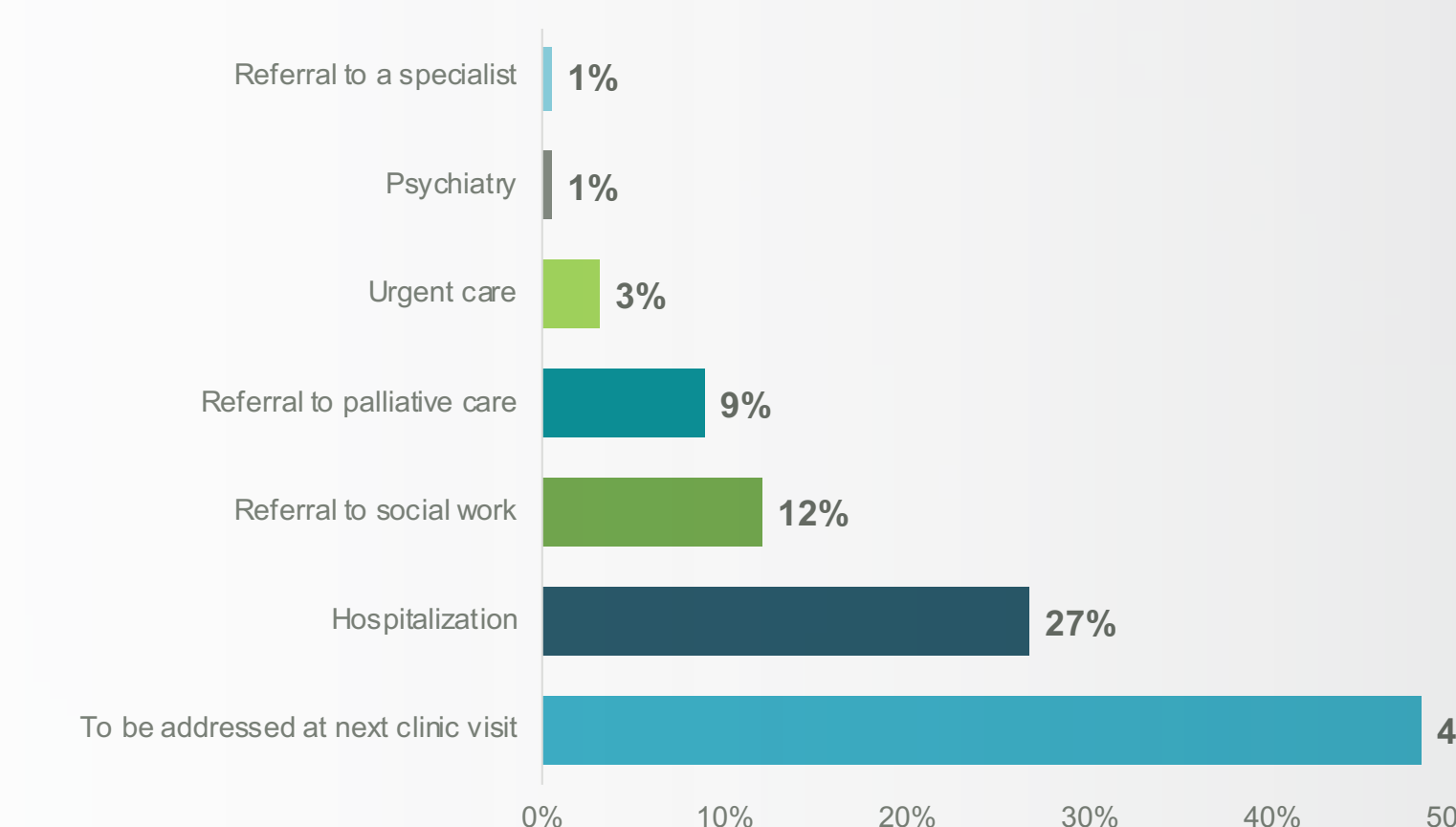
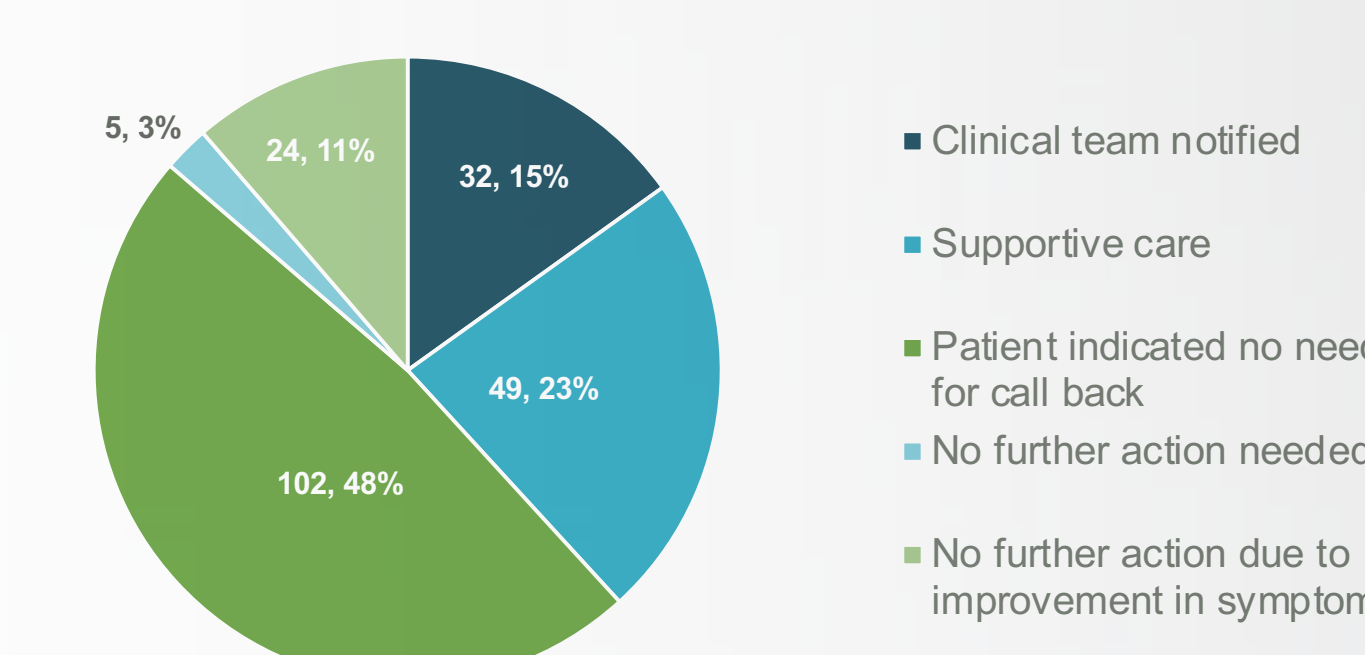


Figure 5: Further exploration of the “No action” Clinical Actions Category (n=212 alerts)



## REFERENCES

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