

# Identifying risk factors of chemotherapy-induced nausea and vomiting using electronic medical records

ANISSA MORRISON

HUMAYERA ISLAM

ABU SALEH MOHAMMAD MOSA PHD

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More and more data is becoming available for analysis through electronic medical records.

- Demographic: age, sex, race
- Clinical: prescriptions, diagnoses, treatment history



<https://www.letscale.com/critical-data-points-for-patient-electronic-health-records/>



# Chemotherapy-Induced Nausea and Vomiting

- Experienced by up to 62% of chemotherapy patients<sup>1</sup>
- Decreases quality of life and treatment compliance<sup>2</sup>

1. Mosa ASM, Hossain AM, Yoo I (2020) A dynamic prediction engine to prevent chemotherapy-induced nausea and vomiting. *Artif Intell Med* 109:101925. <https://doi.org/10.1016/j.artmed.2020.101925>
2. Ettinger DS, Armstrong DK, Barbour S, et al (2012) Antiemesis. *J Natl Compr Canc Netw* 10:456–85. <https://doi.org/10.6004/jnccn.2012.0047>

**Emetogenicity:** risk of causing vomit

► **Patient risk factors for anticancer agent-induced nausea/vomiting include:**

- ◊ **Younger age**
- ◊ **Female sex**
- ◊ **Previous history of anticancer agent-induced nausea and vomiting (CINV)**
- ◊ **Little or no previous alcohol use**
- ◊ **Prone to motion sickness**
- ◊ **History of morning sickness during pregnancy**
- ◊ **Anxiety / high pretreatment expectation of nausea**

National Comprehensive Cancer Network 2021 Guidelines

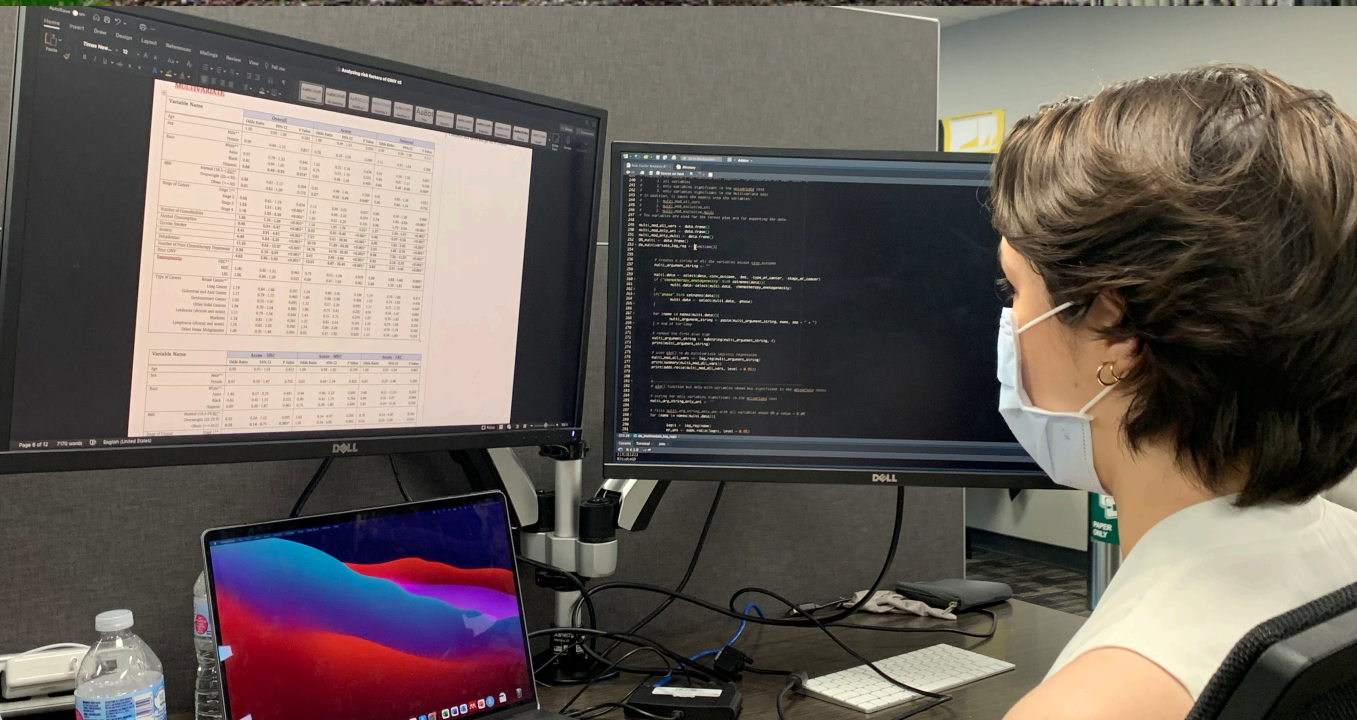
## Questions:

- What are the patient-specific risk factors for CINV?
- How do these risk factors vary based on high/medium/low emetogenicity?





<https://www.themaneater.com/stories/campus/susan-g-komen-donates-32k-ellis-fischel-cancer-cen>



6124 patient chemotherapy events were retrieved.

- Separated by the phase (acute/delayed) and the emetogenicity (high/medium/low)
- Potential risk factors were analyzed using statistical methods
  - Univariate and multivariate logistic regression model

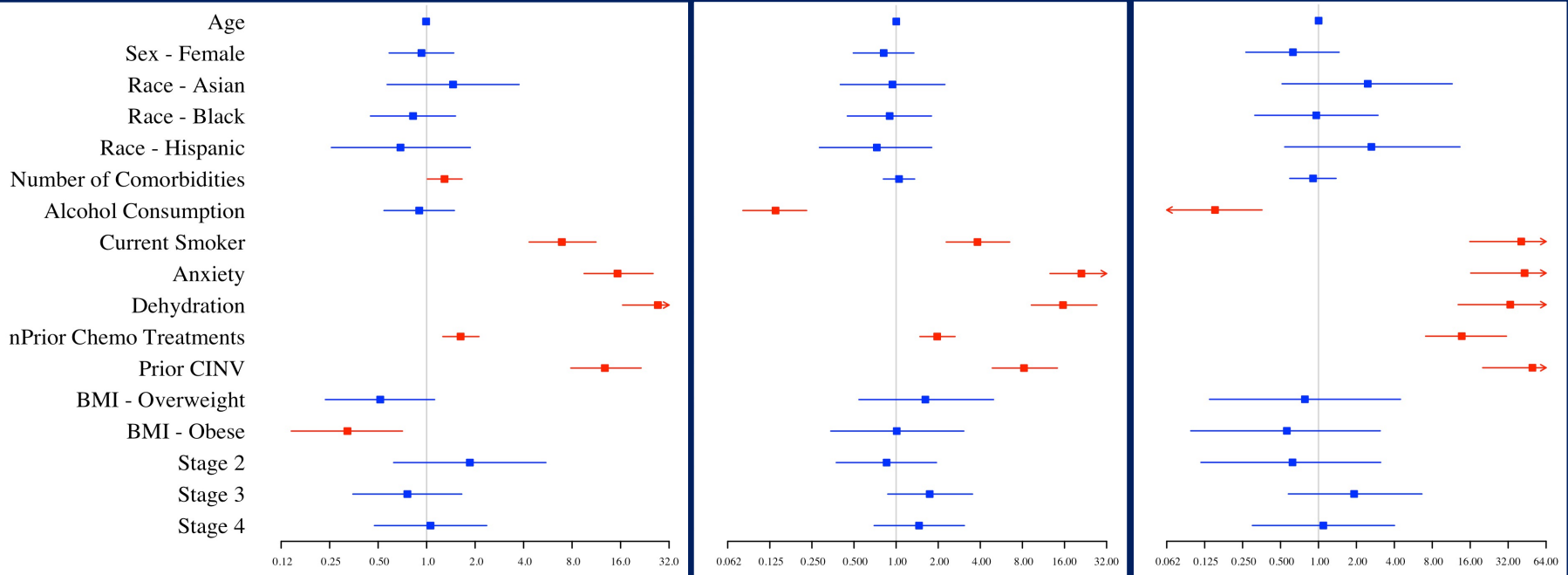
Treatment Emetogenicity:

High

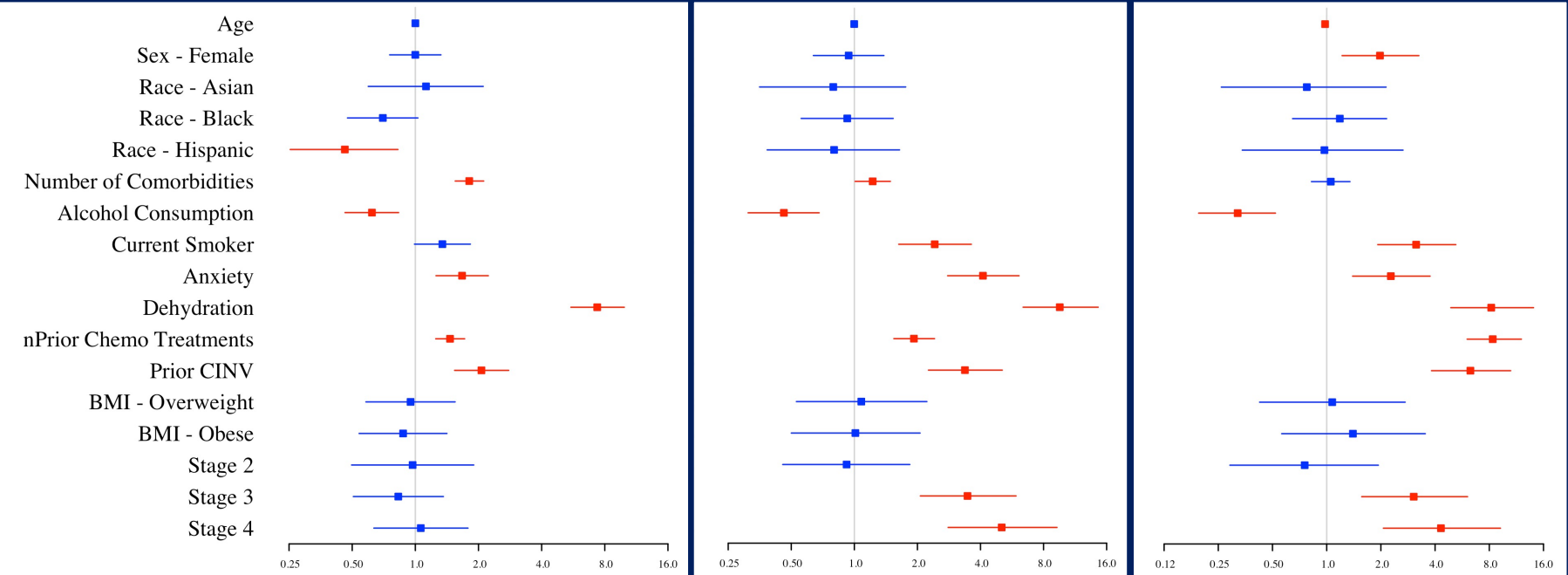
Medium

Low

Acute



Delayed





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# Discussion

- Well-known risk factors like age and sex were only risk factors for certain treatments
- Dehydration had a VERY strong effect on risk of CINV
  - 33 times more likely to develop acute CINV from low emetogenic chemotherapy
  - 45% of cases had dehydration



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# Conclusion

- Help healthcare providers develop better treatment plans geared toward the patient
- Lead to more effective CINV prevention guidelines
- **Future Scope:** We need a multi-center study to make more widespread conclusions







Anissa Morrison (right)  
[acmnwf@missouri.edu](mailto:acmnwf@missouri.edu)

Abu Mosa (top left)  
[mosaa@health.missouri.edu](mailto:mosaa@health.missouri.edu)

Humayera Islam (bottom left)  
[hikf3@mail.missouri.edu](mailto:hikf3@mail.missouri.edu)

# Thank you!

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