

Narratives from the Frontline

Sentiment Analysis of Provider Experience Across Generations and Clinical Contexts

Dwayne Hoelscher DNP, MS, RN

Background

- Explore how providers relate to patients through progress notes or other unstructured documentation.
- This poster aims for initial evaluation of patient and provider generations as well as explore different patient types and levels as they relate to provider generations

Study Design and Methods

- Unstructured clinical notes generated in an Electronic Health Record (EHR) and data extracted from an enterprise data warehouse (EDW)
- Python 3.12 was used for data extraction and manipulation
- Python Textblob package was used for data/sentiment analysis
 - Sentiment Analysis produces a Polarity score with ranges of -1 (negative) to 1 (positive)
- Hospital channel patients with admit and discharge dates between: 01/01/2024 and 06/30/2025

- Patient generation groups: Greatest Generation, Silent Generation, Baby Boomer, Gen X, Gen Y, Gen Z

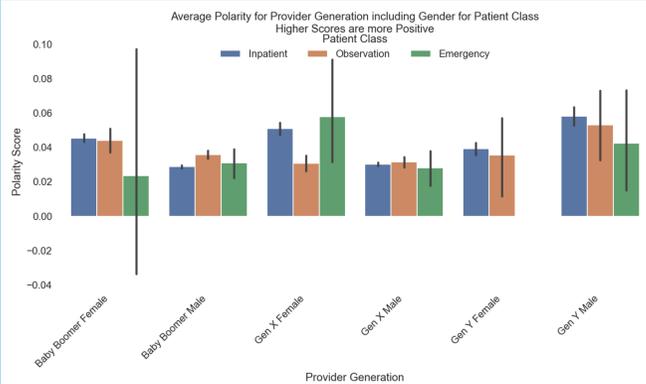
- Provider generation groups: Baby Boomer, Gen X, Gen Y

- Encounter Types: Emergency, Inpatient, Observation.

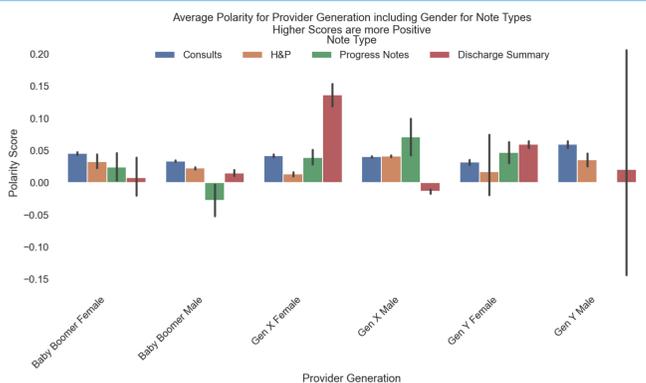
- Note Types: Consults, Discharge Summary, H&P, Progress Notes.

Data Analysis

- Data was analyzed based on Provider Generation and Gender
- A total of 24,230 notes were extracted
- Notes by Patient gender:
 - Female: 13,592
 - Male: 10,638
- Notes by Provider gender:
 - Female: 4,860
 - Male: 19,370
- Patient Classes by Provider Generations and Gender

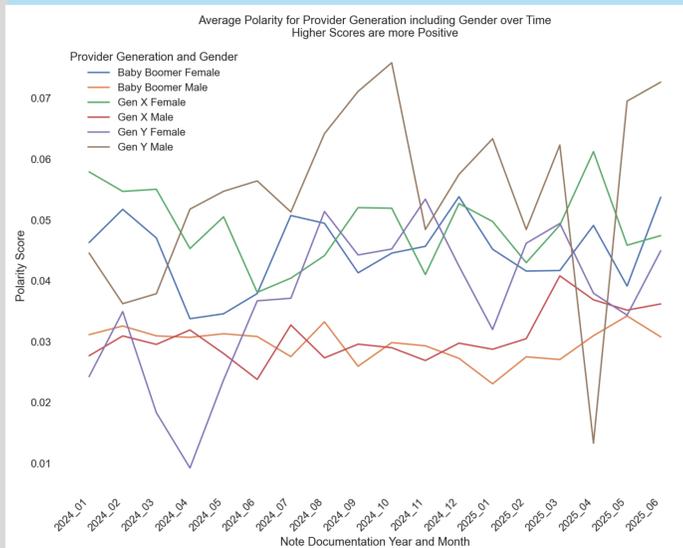


Note Types by Provider Generations and Gender

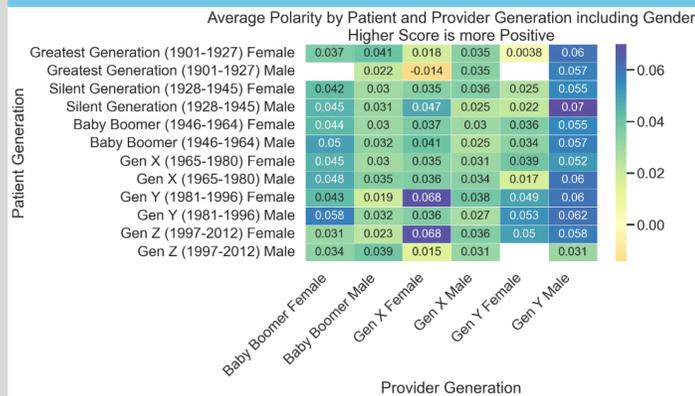


Interpretation

- Positive Sentiments overall but only slightly positive
- Sentiment variation between the Provider Generations is minimal
- Sentiment over time is steady with minimal variation but occasional spikes



- Female providers notes show more positive responses



Discussion

- The findings emphasize the need for continued investigation with other factor relevance
- Tool development for more real time monitoring could be a solution
- Negatively phrased notes could lead to patient dissatisfaction as well as a decrease in reputation

Limitations

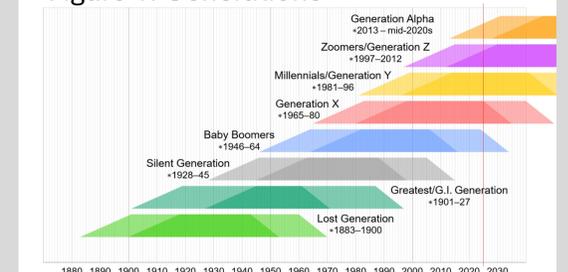
- Documentation patterns such as "no nausea, vomiting, or diarrhea" would be scored as positive, negative, and negative, respectively
- Word selection such as "declined nausea" could be ambiguous

- Sentiment can change over time due to experience and growth

Conclusion

- Investigating notes is somewhat not novel but difficult and becoming more prevalent with the use of various AI tools
- More investigation into other factors such as stigmatizing language would be the next step

Figure 1: Generations



Source: <https://en.wikipedia.org/wiki/Generation>