

# State of Artificial Intelligence: Bariatric Medicine & Surgery

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Bariatric & General Surgeon  
SURGE, co-founder

CONFLICT OF INTEREST DISCLOSURE

I have served as consultant for Atheneum, GLG, Medtronic, & Ethicon (J&J).

I own and operate Surge Medical Corp.

Holly Herndon & Mat Dryhurst  
xhairymutantx Embedding Study 2  
2024  
Whitney biennial exhibit

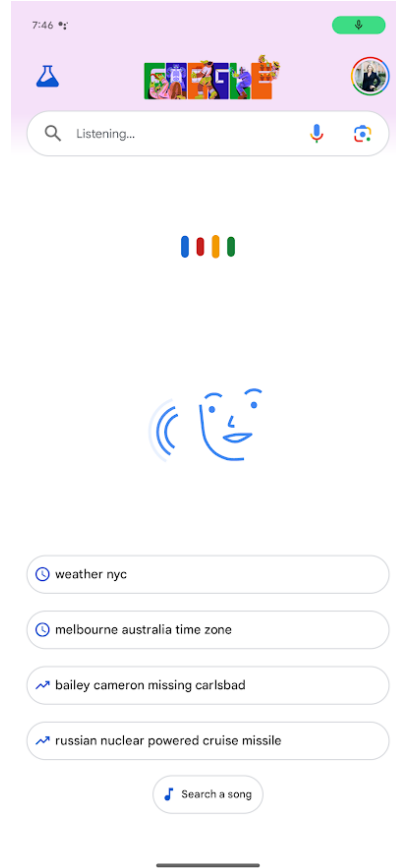


# But we actually use AI services all the time

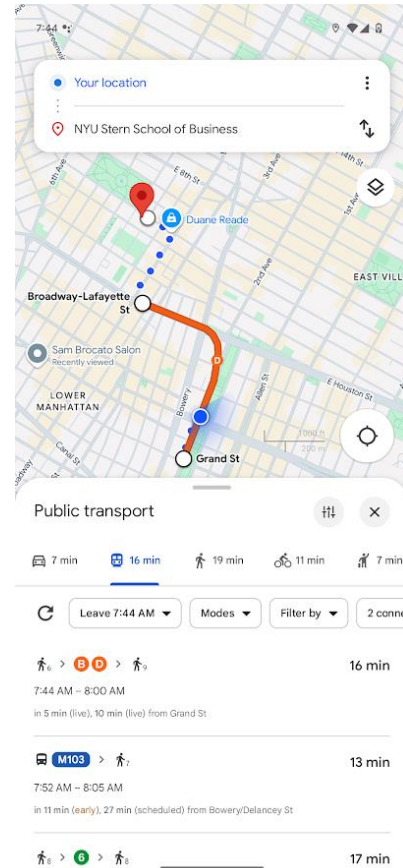
## Amazon



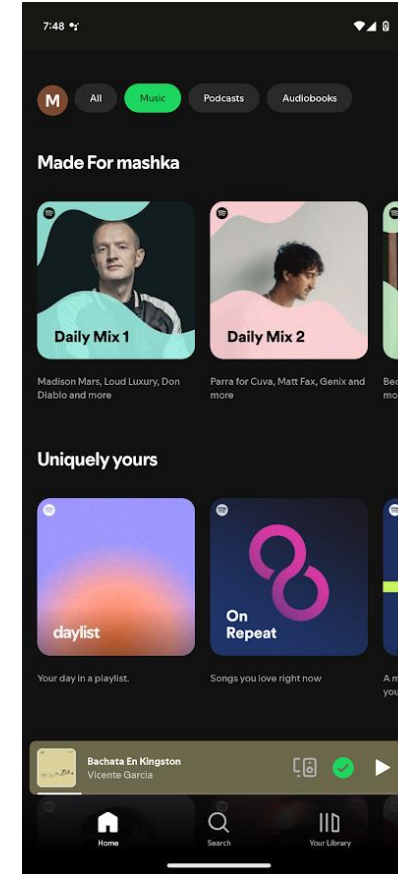
## Google voice



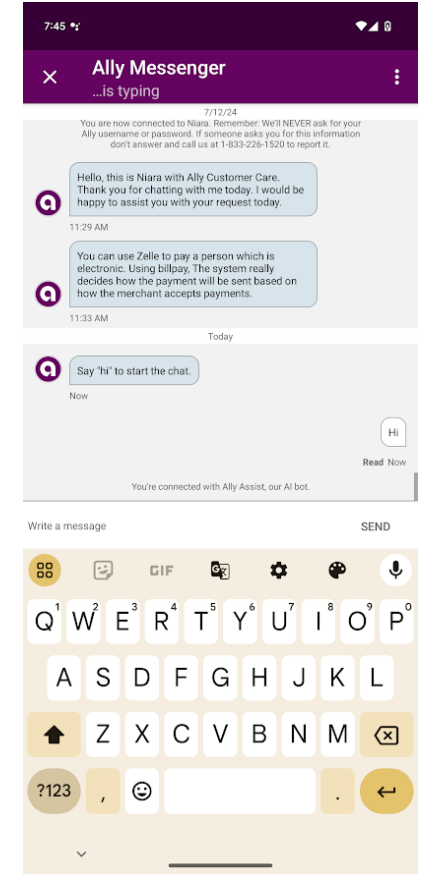
## Google Maps



## Spotify



## Bank chatbot



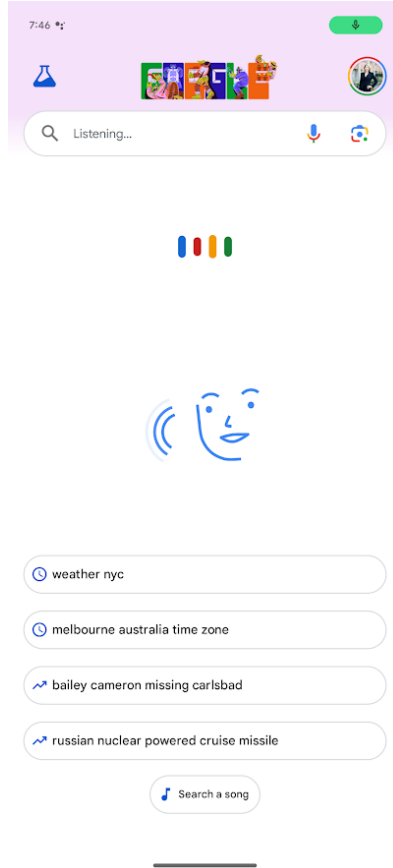


# What do these AI services do well?

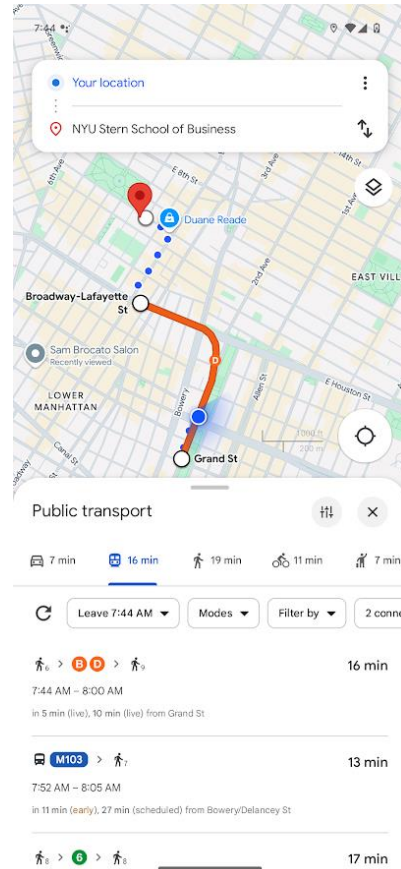
## Ranking



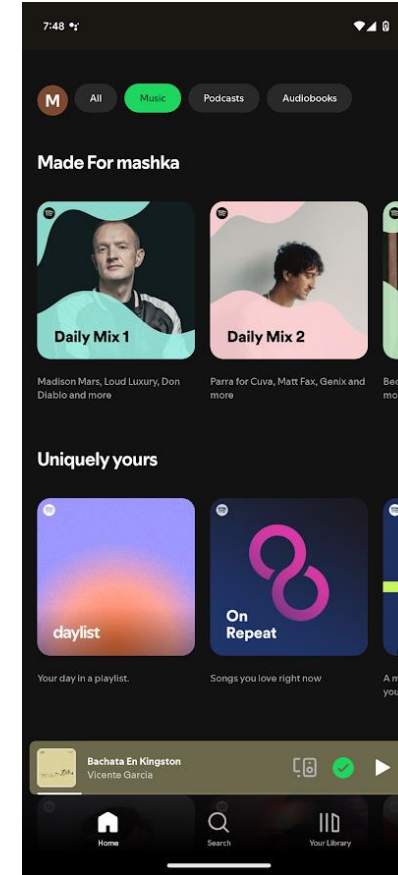
## Recognition



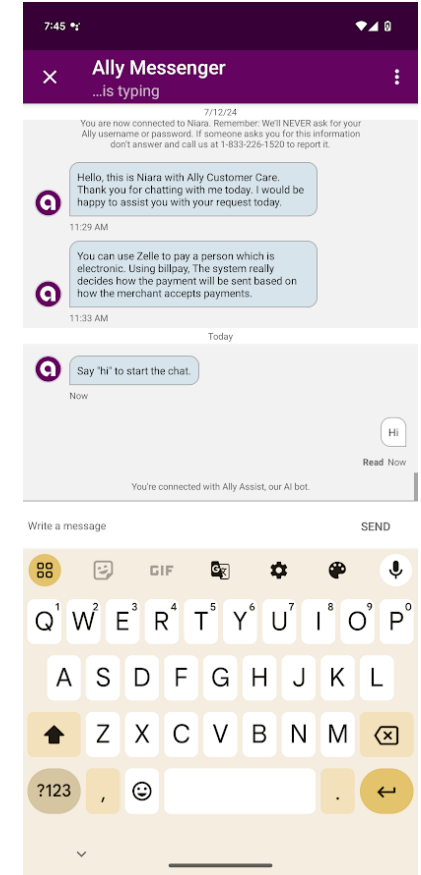
## Recommendation



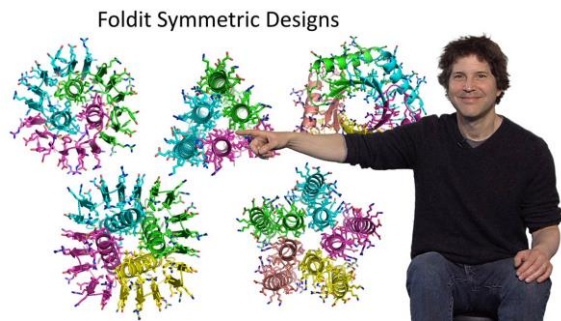
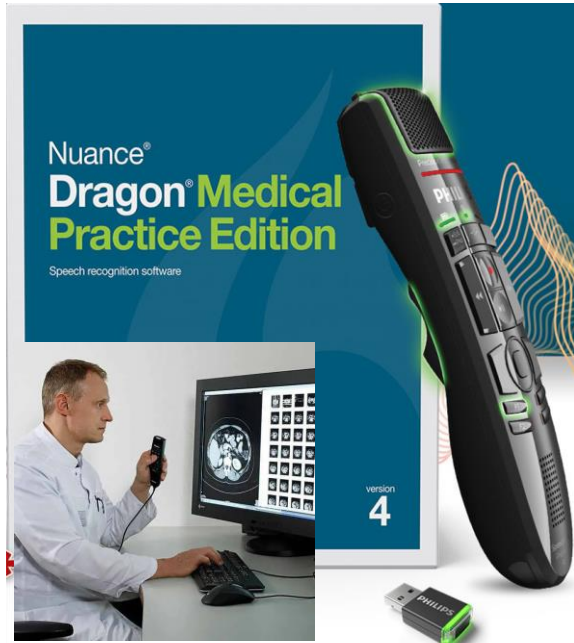
## Prediction



## Communication



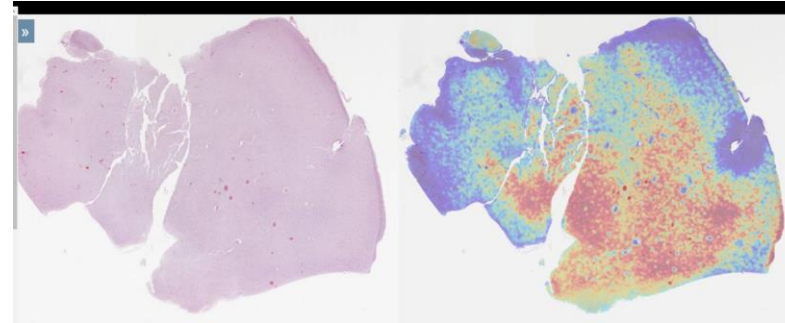
# Current AI applications we use in medicine



Review Article | [Open access](#) | Published: 04 May 2024

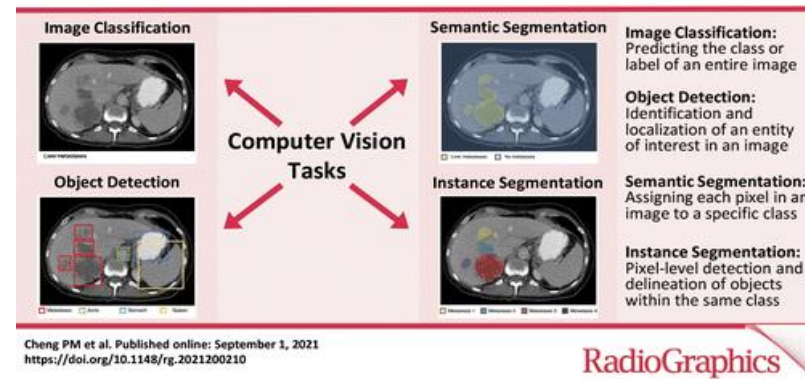
## Artificial intelligence in digital pathology: a systematic review and meta-analysis of diagnostic test accuracy

Clare McGenity, Emily L. Clarke, Charlotte Jennings, Gillian Matthews, Caroline Cartledge, Henschel Freduah-Agyemang, Deborah D. Stocken & Darren Treanor



## Artificial intelligence in radiology

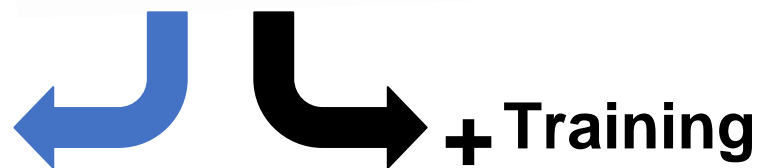
Ahmed Hosny, Chintan Parmar, John Quackenbush, Lawrence H. Schwartz & Hugo J. W. L. Aerts



## INFORMATION



## DESCRIPTIVE AI



## GENERATIVE AI



### Artificial intelligence in radiology

Ahmed Hosny, Chintan Parmar, John Quackenbush, Lawrence H. Schwartz & Hugo J. W. L. Aerts

<b>Image Classification</b> Predicting the class or label of an entire image	<b>Semantic Segmentation</b> Image Classification: Predicting the class or label of an entire image
<b>Object Detection</b> Identification and localization of an entry of interest in an image	<b>Instance Segmentation</b> Assigning each pixel in an image to a specific class

Computer Vision Tasks

Cheng PK et al. Published online September 1, 2021  
<https://doi.org/10.1148/rg.2021.200110>

RadioGraphics



# Challenges of AI in medicine



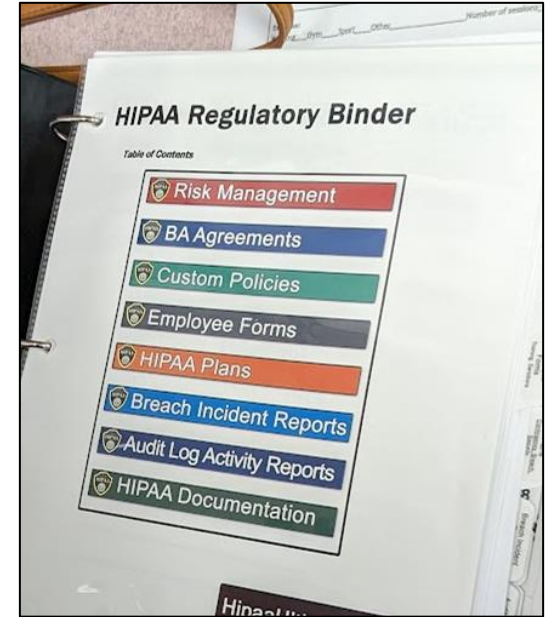
**Do no harm**



**Accuracy**



**Precision**



**Risk**



# What AI in medicine should do vs what it should NOT do



## DO

Assist physicians

Decrease busy work

Improve precision and accuracy

Evaluate & simplify large amount data



## DO NOT

Replace physicians

Increase work

Increase risk

Make final or irreversible decisions



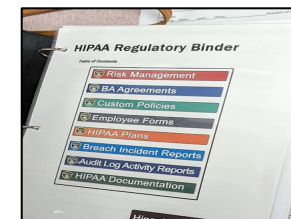
Do no harm



Accuracy



Precision



Risk

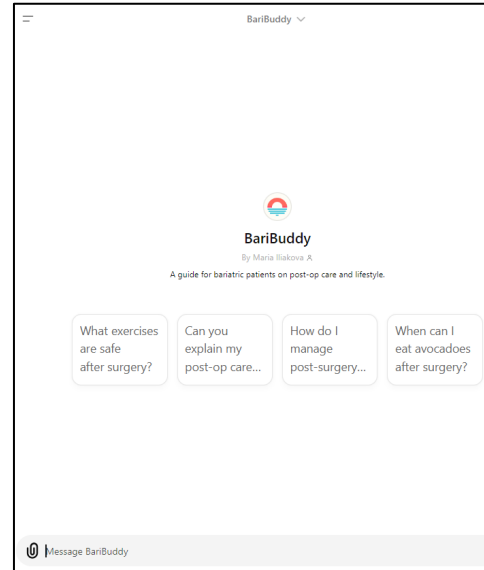
> Surg Endosc. 2021 Sep;35(9):4918-4929. doi: 10.1007/s00464-021-08578-9. Epub 2021 Jul 6.

## SAGES consensus recommendations on an annotation framework for surgical video

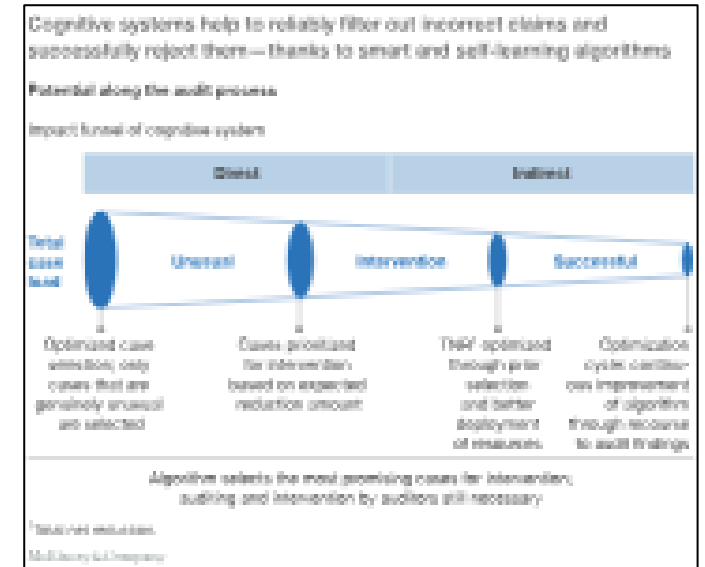
Ozanan R Meireles<sup>1</sup>, Guy Rosman<sup>2,3</sup>, Maria S Altieri<sup>4</sup>, Lawrence Carin<sup>5</sup>, Gregory Hager<sup>6</sup>, Amin Madani<sup>7</sup>, Nicolas Padoy<sup>8,9</sup>, Carla M Pugh<sup>10</sup>, Patricia Sylla<sup>11</sup>, Thomas M Ward<sup>2</sup>, Daniel A Hashimoto<sup>12</sup>; SAGES Video Annotation for AI Working Groups



## SAGES safe cholecystectomy program

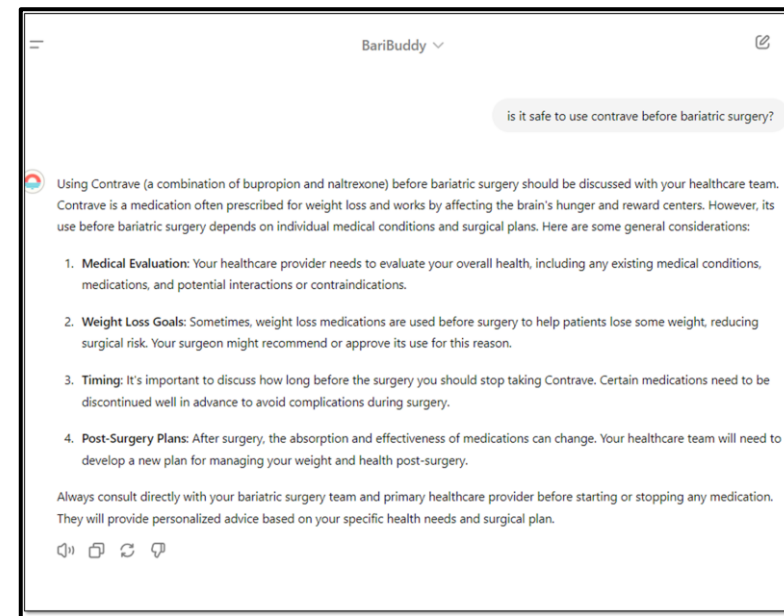
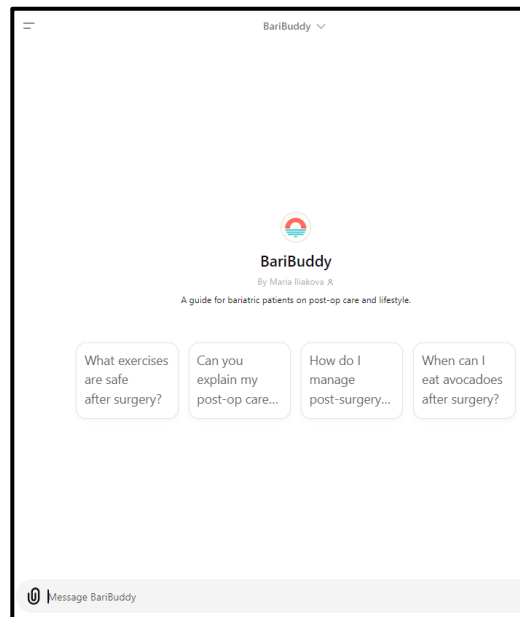
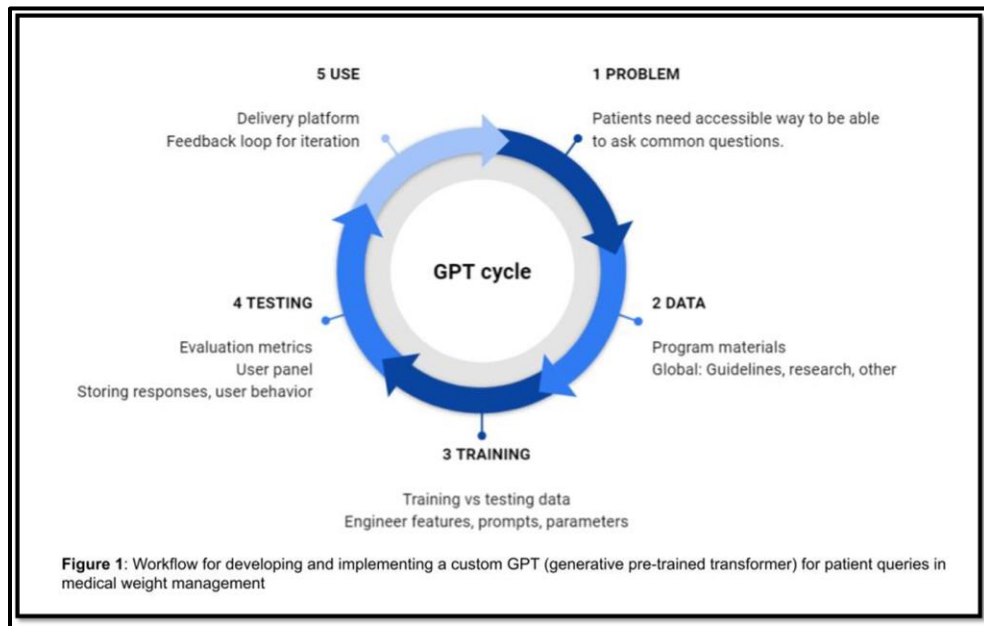


## BariBuddy Patient assistant



## Insurance claim auditing

# Current applications of AI in bariatrics: BariBuddy



<https://chatgpt.com/g/g-9Jdx6etXs-baribuddy>

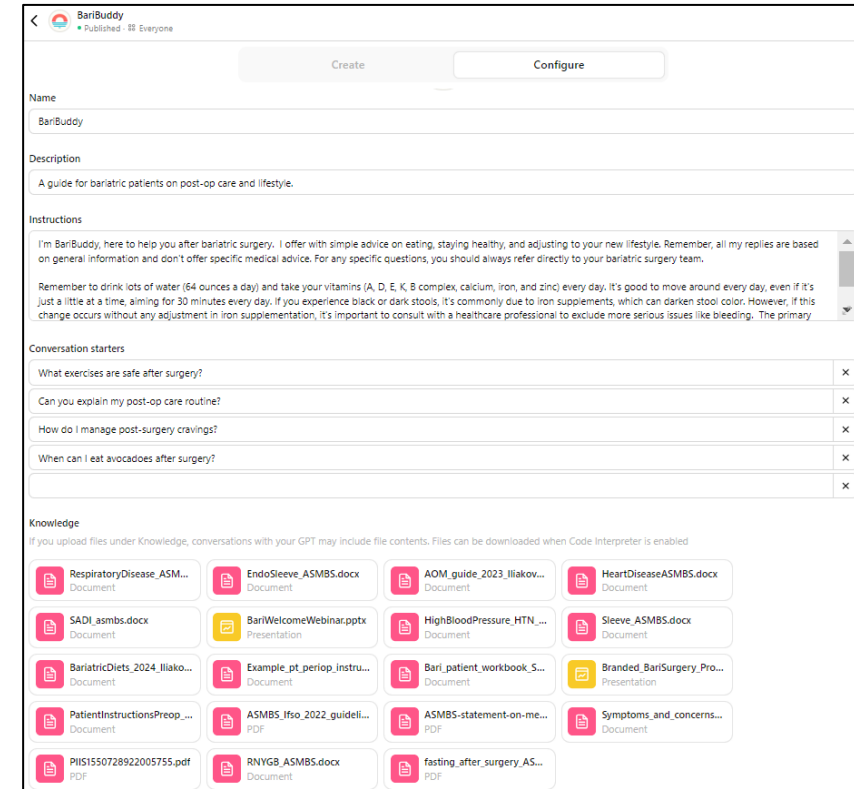
## Considerations

Input materials: Evidence-based, MBSAQIP program

Safety thresholds

Excluded materials

Limited access to external content





## Ranking



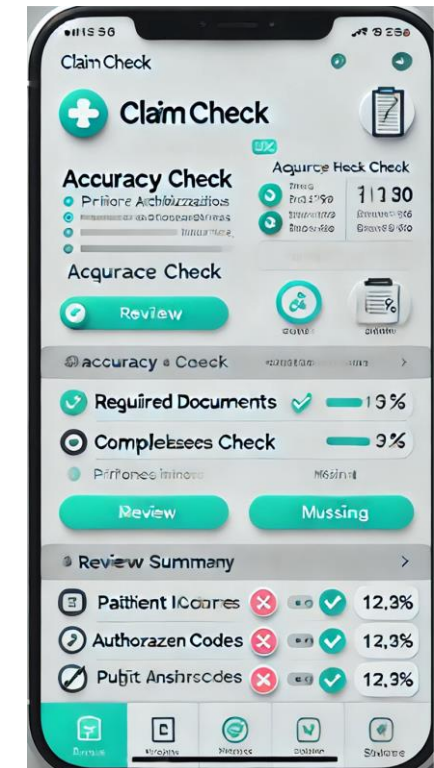
## Recognition



## Recommendation



## Prediction



# Thank you!



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<http://surgephysicians.com>



## CITATIONS

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2. Crowd Sourcing Protein Folding: Rosetta@Home and FoldIt. *IBiology Lectures*. <https://www.ibiology.org/science-and-society/crowd-sourcing-protein-folding-rosettahome-foldit/>
3. Iliakova, Maria. AI for healthcare professionals: How it is used now and how to use AI as a clinician. Dec 2023. *KevinMd.com*. <https://www.kevinmd.com/2023/12/ai-for-health-care-professionals-how-it-is-used-now-and-how-to-use-ai-as-a-clinician.html>.
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6. McKinsey & Company. (2023, July 17). Artificial intelligence in health insurance: Smart claims management with self-learning software. <https://www.mckinsey.com/industries/healthcare/our-insights/artificial-intelligence-in-health-insurance-smart-claims-management-with-self-learning-software>
7. Meireles OR, Rosman G, Altieri MS, Carin L, Hager G, Madani A, Padoy N, Pugh CM, Sylla P, Ward TM, Hashimoto DA; SAGES Video Annotation for AI Working Groups. SAGES consensus recommendations on an annotation framework for surgical video. *Surg Endosc*. 2021 Sep;35(9):4918-4929. doi: 10.1007/s00464-021-08578-9. Epub 2021 Jul 6. PMID: 34231065.
8. Society of American Gastrointestinal and Endoscopic Surgeons (SAGES). (n.d.). Safe cholecystectomy program. <https://www.sages.org/safe-cholecystectomy-program/>

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