
Diabetes
Symposium
2025
KENTUCKY
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AI in Diabetes Care
Brendan Apfeld & Kelly Richards
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Diabetes Symposium 25
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Disclosure to Participants

Notice of Requirements For Successful Completion
- Please refer to learning goals and objectives
- Learners must attend the full activity and complete the evaluation in order to claim continuing education credit/hours

- Conflict of Interest (COI) and Financial Relationship Disclosures:
  - Presenter: Kelly Richards, RDN, CDCES, CTT- OmadaHealth Employment and Stock
  - Presenter: Brendan Apfeld,PhD – OmadaHealth Employment; CVS Health Employment
- Non-Endorsement of Products:
  - Accredited status does not imply endorsement by AADE, ANCC, ACPE or CDR of any commercial products displayed in conjunction with this educational activity
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Learning Objectives
After completing this activity, the participant should be able to:

- Define Artificial Intelligence (AI): Gain an understanding of what AI is and its fundamental concepts in the medical context.
- Describe AI Applications: Discover practical use cases of AI in the field of diabetes education and its potential to enhance personalized care and outcomes with a specific focus on areas where Clinical Subject Matter Experts can contribute to the design, integration, and implementation of AI in diabetes education initiatives.
- Evaluate the effectiveness of AI-powered diabetes education: Evaluate current research on the effectiveness of AI-powered tools in diabetes education, including a case studies of AI tools

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Agenda

1. Define AI
2. AI Applications in Health
   a. Broad lit review
   b. Diabetes, specifically
      i. Overview
      ii. Results
3. Case Study 1: AI Nutrition Agent
4. Case Study 2: MI Nutrition Agent

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Define AI

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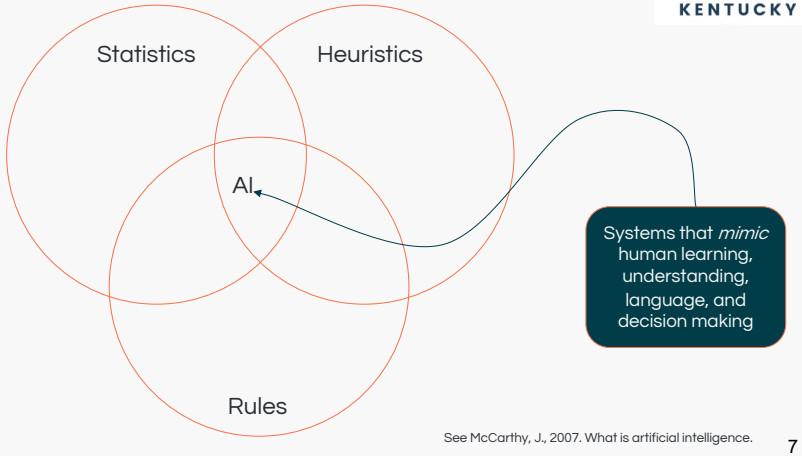
What is AI?



See McCarthy, J., 2007. What is artificial intelligence.

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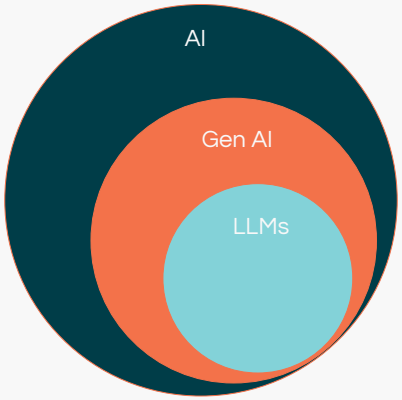
Generative AI and LLMs



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1. Explore AI Applications

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1. Broad Lit Review

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Lit review of AI in healthcare

Far too much to include in today's discussion

- Diagnosis
- Triage
- Patient engagement and services

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Diabetes Specific AI Tools

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AI Chronic Condition ~~Diabetes~~ Research

- 4 main areas of focus (Susilo et al. 2025)
  - Early detection and diagnosis
  - Enhanced monitoring
  - **Personalized treatment**
  - **Proactive care**
- Personalization results in greater adherence to treatment and patient results (Alam et al., 2024)
  - Li et al., 2020
  - Pawar & Sharma, 2019;
  - Singla et al., 2019

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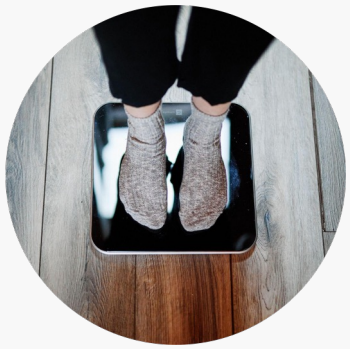
AI Chronic Condition ~~Diabetes~~ Research

- AI study outcomes
  - Majority of studies show small to moderate changes in weight, fruit & vegetable increase, medication adherence, and smoking cessation[1, 2, 3]
  - Challenging to review at this time due to lack of standardization of how AI tools are created, monitored, how tools are judged for success, and lack of robust standardized trials[4]



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Identifying Target

- Start with identifying target audience
  - Prediabetes, T2D, T1D, HTN
  - A1c, BMI
- Identify outcomes we want to drive
  - Program engagement
  - Ongoing engagement
  - Weight loss
  - A1c improvement
  - Glucose or BP improvement
  - Process improvement

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Utilizing SMEs

What's a SME?
- Subject matter expert
- Product work includes project managers, engineers, and designers
- They do not have expertise in diabetes
- That's where a CDCES SME comes in for the build

How can SME's be involved
- Resource data sets for reliable benchmark data
- Data set identification
  - Sample questions for QA & scoring
- Safety risk identification
- Identifying sample sizes and success thresholds
- Healthcare quality SME

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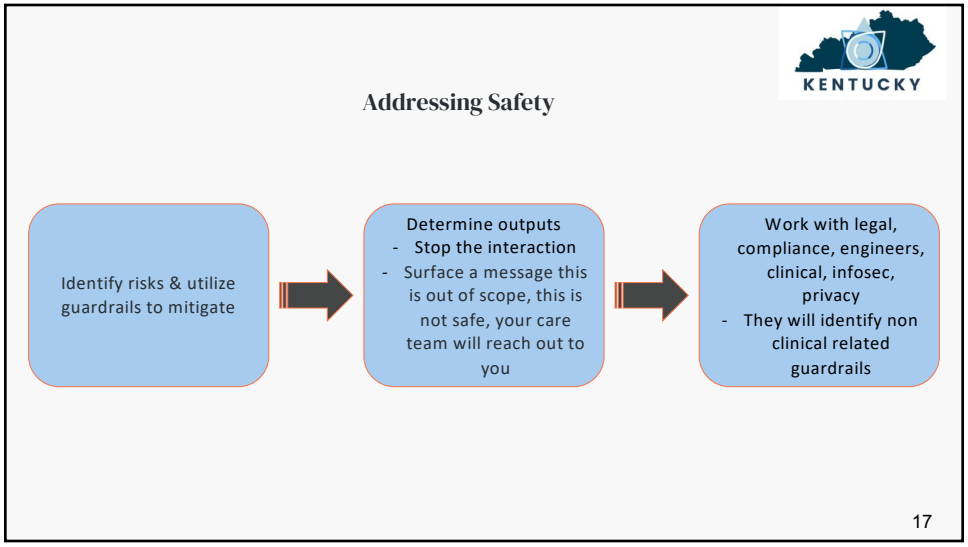
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Addressing Safety
Identify risks & utilize guardrails to mitigate
Determine outputs
- Stop the interaction
- Surface a message this is out of scope, this is not safe, your care team will reach out to you
Work with legal, compliance, engineers, clinical, infosec, privacy
- They will identify non clinical related guardrails
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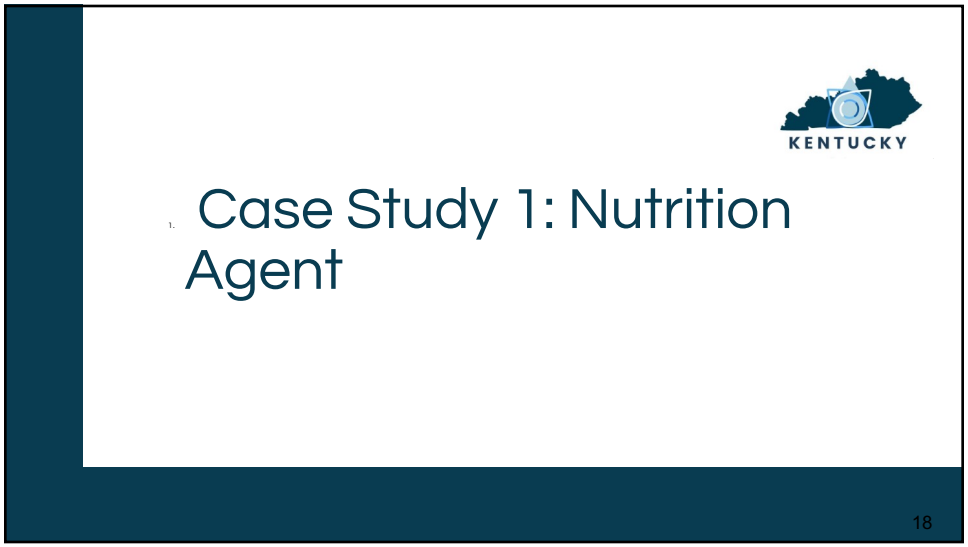
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Case Study 1: Nutrition Agent
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Why Create a Nutrition Agent

- Real time education grounded in evidence
- Clinicians working with AI engineers to train agent with specialty society guidelines & peer reviewed articles & best practices
- Personalized informed answers informed by type of care
- Scope: What questions are answered & how

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Chat GPT Q & A

Kelly Richards
What will cutting out carbs do?

GPT-4o
Cutting out or significantly reducing carbohydrates can have a variety of effects on the body, depending on the individual, their overall diet, and the extent of the reduction. Here are some potential outcomes of cutting out carbs:

Positive Effects:

1. **Improved Blood Sugar Control**: For some individuals, particularly those with insulin resistance or type 2 diabetes, reducing carbohydrate intake can help stabilize blood sugar levels and decrease insulin spikes.
2. **Weight Loss**: Many people experience weight loss when cutting out carbs due to reduced calorie intake, changes in insulin levels, and reductions in water weight. Low-carb diets can lead to a decrease in appetite.

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Fine Tuned Nutrition Agent Q & A

user
avatar What will cutting out carbs do?

assistant
Cutting out carbs can lead to weight loss, but it's not a long-term solution. The body needs some carbs for energy. A more balanced approach is to focus on whole, nutrient-dense foods like vegetables, fruits, whole grains, lean proteins, and healthy fats. This can help you feel full and satisfied while providing essential nutrients.

What's your main goal for cutting out carbs?

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Humans In the Loop

How can care teams be involved (we need the humans!)

- Care teams can be notified of MBR usage & questions asked
- Care teams can follow up with additional information and support
- MBRs get real time answers when they need them (e.g. I'm making my grocery list now and want a reliable answer)
- Care teams can follow up with putting a plan into action

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Measuring Success

- How do you know if the AI tool is successful
  - MBR interviews
  - Usage & driving identified metrics
  - Feedback
  - HMW drive further clinical outcomes
- Product cycle: making improvements based on feedback
  - What might you use AI to do for V2?
  - Consider:

Learnings | Clinical Expertise | Outcomes You Are Driving | Literature Review

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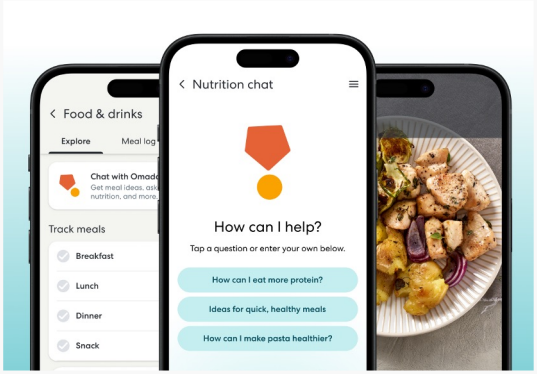
Tool in Action



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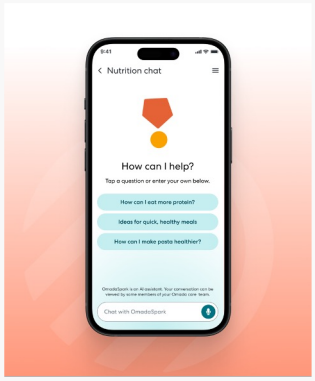
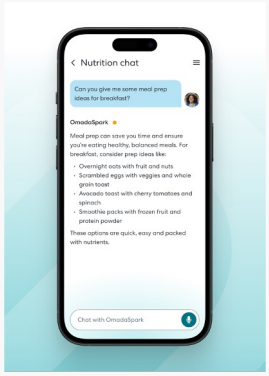
Tool in Action





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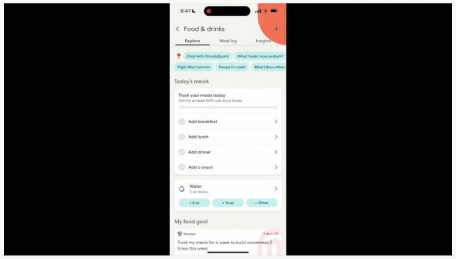
Nutrition Agent Demo



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AI Nutrition Agent - What's Next?

What ideas might help MBRs in the future?

- Look at MBR food tracking
- Look at clinical inputs
- Surface ideas to make some small changes
  - Swaps, recipes, education tidbits
- Education options

What are some other ideas? How might you use it to help MBRs?

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Case Study 2: AI Nutrition Motivational Interview (MI) Agent

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Motivational Interviewing quick review

- Motivational Interviewing (MI), an empathetic, member-centric technique
- Acknowledge and address ambivalence about change
- MBR identified goals
- Evokes and strengthens intrinsic motivation for change
- Focused to help with health changes over time

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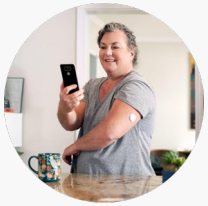
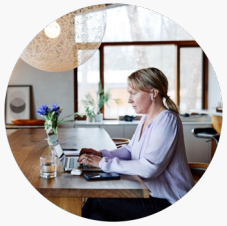
Nutrition MI Agent



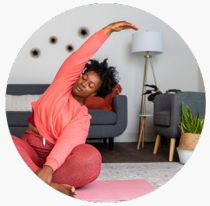
Outcomes:

- Impact on weight loss, glucose, diabetes burden, goals completed
- Program engagement
- Diabetes specific goals set & progress



Identifying Target Audience:

- MBRs that have tried a lot of diets, stuck
- All or nothing thinkers
- Failed many times in past



Why MI:

- Well-established in the behavioral health scientific literature, including AI MI studies
- Included in ADA Standards of Care & AND Position paper

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How Can AI Help

AI for MBRs
- Available any time
- Can use it when help is needed
- Guide MBR to create a SMART goal
- MBR identified focus area

AI results for care team MBRs
- Option to ask a MBR to use tool
- Insight into barriers, readiness for change, confidence
- AI can summarize MI answers
  - Easier to focus on main takeaways

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Nutrition MI Agent

- What do we want the AI MI agent to do?
  - Guide through an MI experience
    - Represent the educational stages of MI
      - Engaging, focusing, evoking, and planning
  - Adherence to spirit of MI
    - Evocation, autonomy, collaboration, compassion
  - Uses MI skills
    - Open ended questions, affirming, reflecting, and summarizing
- Safe and stays in scope
  - MI and not act as a therapist

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Nutrition MI Agent

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- Data used to train the model?
- Writing the prompt
- Agent inputs: what does it know about the MBR?
- What model do you use?
- When do you make updates?
- PHI safe platforms
- Is it performing well
- How is it judged? How are the safety guardrails performing?

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Evaluations

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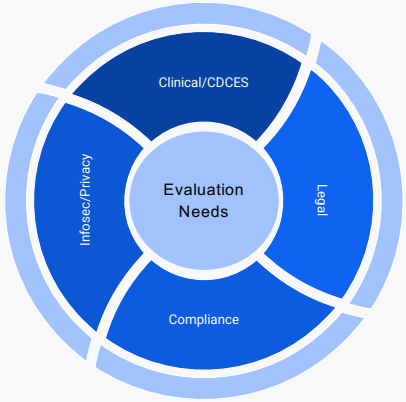

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Evaluations

Topic

- AI Tool Dependant

Frequency & Quantity

- Pre Release
- Post Release
- Ongoing

Result Reviews

- Review by Stakeholders
- Documentation

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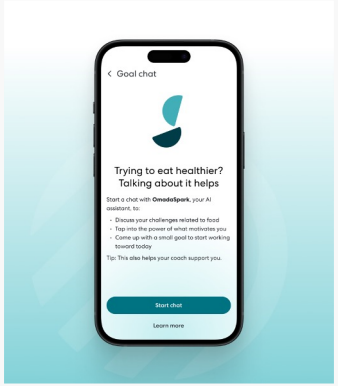
Tool in Action



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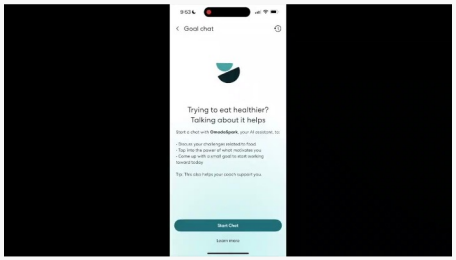
MI Agent Demo



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Lessons and Takeaways

1.

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How can AI help in diabetes education and care?

What do you want to use AI for?	Strengths	Limitations
- Medication reviews - Education at the MBRs level and focus area - Get rid of the mundane (scheduling)	- Ability to summarize - Available 24/7, when a MBR wants it	- Needs monitoring - Safety plan and judge - Are you creating an FDA device? - Trust: member and clinician

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Overcoming Limitations

- Positive & accurate MBR experience. If they don't like it or trust it, they won't use it
- Include clinical SMEs through the entire process
  - They can work alongside engineers to create the best product!
- Invest in the review/judging process
- Keep iterating

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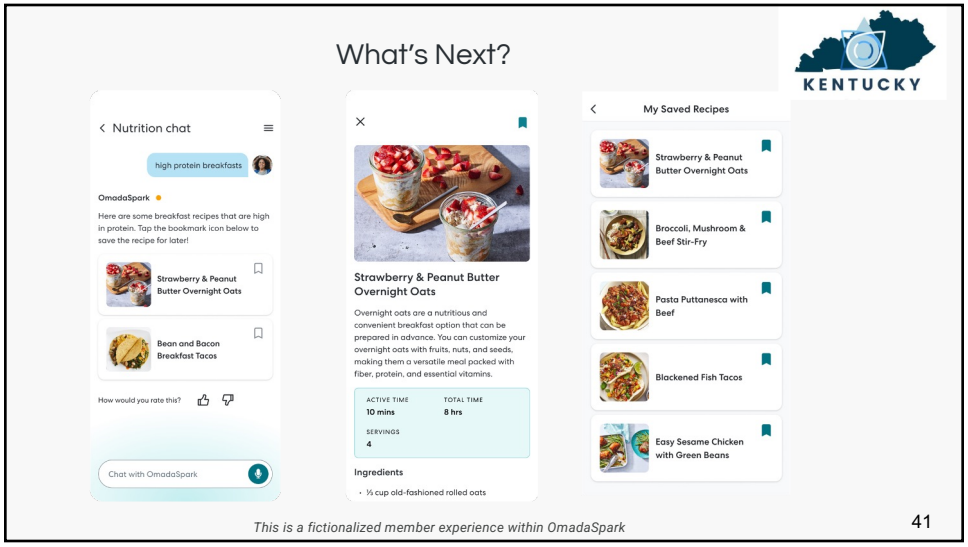
What's Next?
KENTUCKY
Nutrition chat
high protein breakfasts
OmadaSpark
Here are some breakfast recipes that are high in protein. Tap the bookmark icon below to save the recipe for later!
Strawberry & Peanut Butter Overnight Oats
Bean and Bacon Breakfast Tacos
How would you rate this?
Chat with OmadaSpark
Strawberry & Peanut Butter Overnight Oats
Overnight oats are a nutritious and convenient breakfast option that can be prepared in advance. You can customize your overnight oats with fruits, nuts, and seeds, making them a versatile meal packed with fiber, protein, and essential vitamins.
ACTIVE TIME
10 mins
TOTAL TIME
8 hrs
SERVINGS
4
Ingredients
½ cup old-fashioned rolled oats
My Saved Recipes
Strawberry & Peanut Butter Overnight Oats
Broccoli, Mushroom & Beef Stir-Fry
Pasta Puttanesca with Beef
Blackened Fish Tacos
Easy Sesame Chicken with Green Beans
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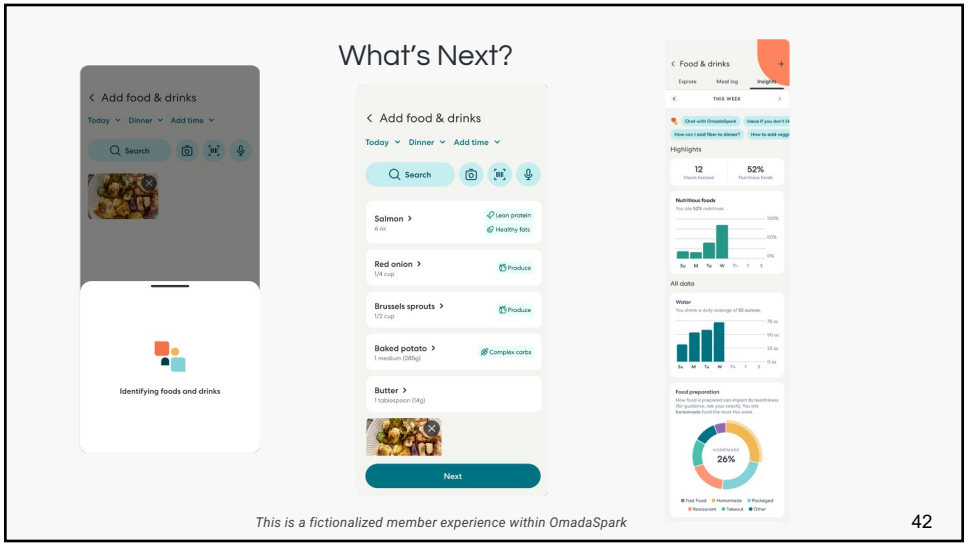
What's Next?
Add food & drinks
Today
Dinner
Add time
Search
Identifying foods and drinks
Add food & drinks
Today
Dinner
Add time
Search
Salmon
Lean protein
Healthy fats
Red onion
Produce
Brussels sprouts
Produce
Baked potato
Complex carbs
Butter
Next
Food & drinks
Highlights
12
52%
All data
26%
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Questions!

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Thank You

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