CoMac Communication System: A Feasibility Implementation of Language-centered Intervention for T2DM

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Presenter and Co-Author Disclosures

- Ulla Connor, Ph.D. – CSO, CoMac Analytics, Inc.
- Lucina Kessler, MSN, APRN, ACNS-BC, CDE - none
- Mary de Groot, Ph.D. – Faculty, Johnson & Johnson Diabetes Institute, Inc., Consultant, Eli Lilly, Inc.
- Robert Mac Neill, MBA – CEO, CoMac Analytics, Inc.
- Robert Sandy – Principal, CoMac Analytics, Inc.

Problem and Need

- **Increasing burden of diabetes management**
  - Patient numbers, costs, limited HCP time and resources (Economic Costs of Diabetes in the U.S. in 2017, ADA)
- **Need for better *tools* for patient engagement, individualization, and focus on *language* for effective population management.**

  (Standards of Medical Care in Diabetes - 2018, ADA)

  (Psychosocial Care for People with Diabetes: A Position Statement of the ADA, 2016)

Can Linguistics Help?

- **Linguistically-based CoMac Segmentation and Communication System**
  - Segments patients according to their worldviews and perceptions (Connor, et al., 2005)
  - Predicts adherence (Sandy and Connor, 2015)
  - Person-centered communication strategies to match the HCP talk with patient talk (Bartlett Ellis, et al., 2014)

Background

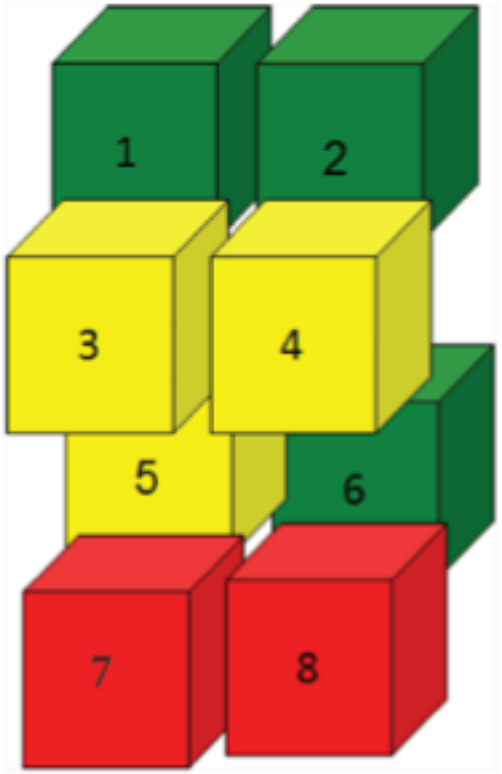
Linking Patient Language with Psychosocial Constructs (Connor, et al., 2011; Connor and Lauten, 2014)

Psychosocial Construct	Examples from Transcript Excerpt
Agency (Bandura, 1977) • High (takes charge) • Low (does not take charge)	"I take my medications constantly." "I hate to take the medicines; there are too many side effects."
Affect (Martin and White, 2005) • Positive (upbeat) • Negative (discouraged)	"I absolutely think that I can manage it." "I'm frustrated most of the time."
Control Orientation (Rotter, 1966) • Internal (looks to self) • External (looks to others)	"I intend to lick this thing [diabetes]." "Unfortunately I'm a sweetaholic. If they didn't make sweets, I probably wouldn't be diabetic."

Background

Translating Linguistic Research into Practice

- Developing a segmentation tool: 12-question survey, **The Descriptor** (Connor, et al., 2015)
- Linking segments to reported adherence (Sandy and Connor, 2015)
- Developing and testing communication strategies for HCPs (Bartlett Ellis, et al., 2014)

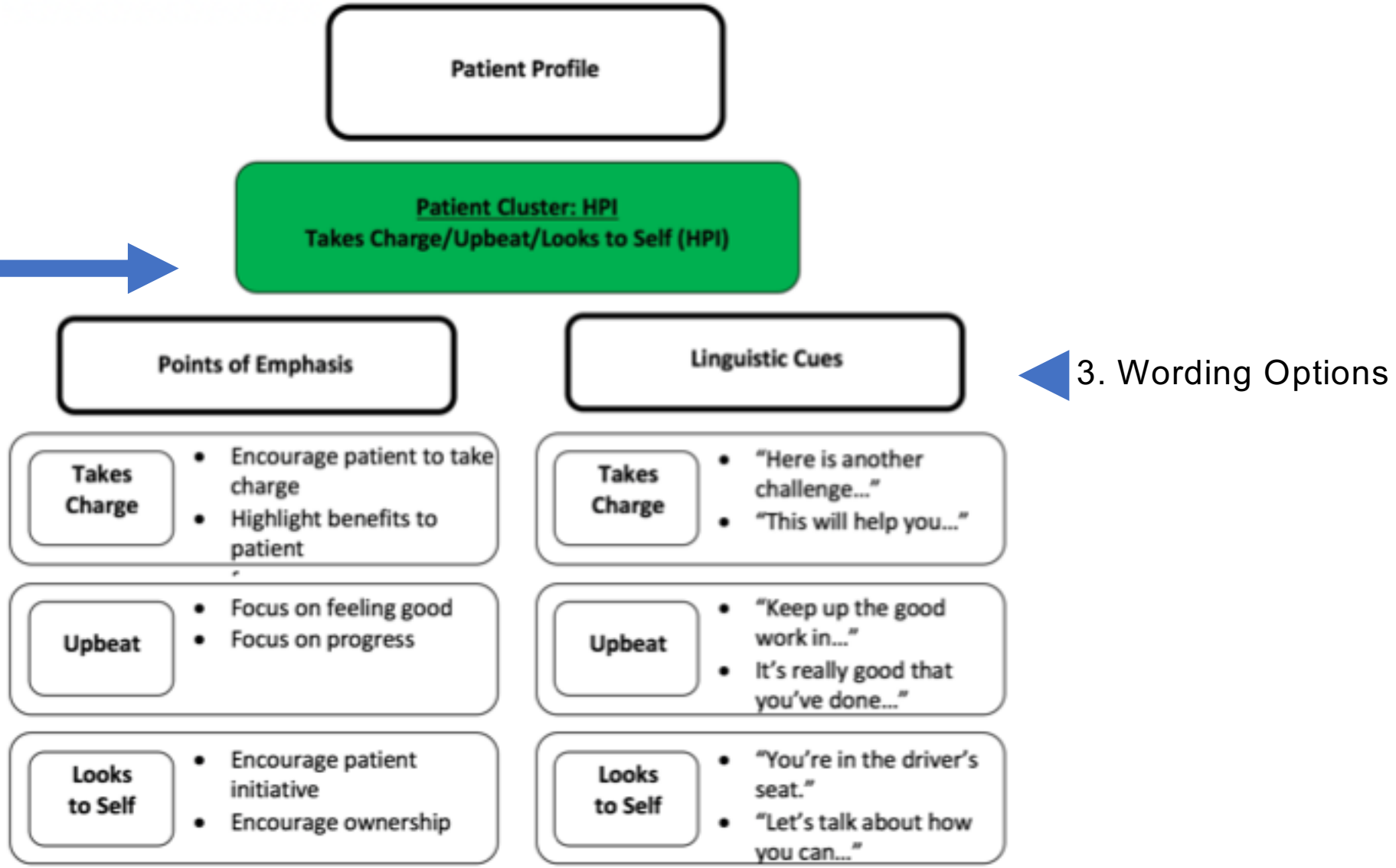


Output to Clinicians

1. Segmentation

2. Communication Strategies

3. Wording Options



Study Aims

1. Assess the feasibility of integration of the CoMac System to clinical practice
2. Assess the impact of the intervention implementation on health outcomes

Methodology and Design

- Mixed methods implementation trial in a Midwestern regional health system clinic, April - December 2016, implemented by a community health worker and two diabetes educators as part of a regular clinical practice. The data were natural clinic observation data.
- Patient participant criteria for the analysis
  - Initial assessment
  - Initial goal setting
  - One or more follow-up visits at least 30 days after initial visit
  - Pre- and post-A1C measures
- 120 participants with type 2 diabetes over 18 years of age
  - 72 patient participants in the CoMac intervention
  - 48 patients in naturally occurred control group with no CoMac intervention

Results: Baseline Characteristics

Characteristic	CoMac Intervention (N=72)	Control (N=48)	*P*-value
• Age in years, MEAN (SD)	61.5 (13.0)	62.4 (13.0)	0.720
• Start weight in lbs, MEAN, (SD)	224.7 (48.6)	221.7 (74.7)	0.792
• Start A1C, MEAN, (SD)	9.02 (2.1)	8.2 (1.4)	0.015
• Gender			0.881
• Male	34	22	
• Female	38	26	

Results: Feasibility of Integration into Clinical Practice

- Methods: analysis of field notes, interviews, monthly site visits
- Results
  - System implementable
    - Segmentation survey quick and feasible
    - Patient Profile, Points of Emphasis, and Linguistic Cues
      - Effective counseling time
      - Patient-centered strategic intervention
      - Standardized engagement
      - Effective resource allocation

Results: Change in A1Cs

Regression Output with A1C Change as Dependent Variable

Variable	Coef.	Std. Err.	*t*	*P*-value
A1C start	-0.70	0.06	-10.90	0.000
CoMac Intervention	-0.42	0.23	-1.81	0.037
Age	0.01	0.01	1.12	0.266
Start weight	0.00	0.00	1.10	0.274
Male	-0.10	0.23	-0.42	0.678

Conclusion

- Study demonstrated the feasibility and effectiveness of the CoMac Segmentation and Communication System in Diabetes Education.
- Showed statistically significant A1C level reduction of the intervention group
- Future studies to include randomized trials, expand sample size, and clinical settings

“Words matter; you can bet your health on it.”

Thank You!

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