PreCHAT

Preconception Health Assessment Tool

Improving **preconception health** through innovation and technology

Introduction

About 50% of all pregnancies are unplanned.[1] Waiting until pregnancy may be too late to prevent fetal exposure to risk factors. If we shift our attention to preconception health (PCH) and help identify, manage or reduce these risk factors we can improve reproductive, maternal and child health outcomes.

To address this issue, Wellington-Dufferin-Guelph Public Health (WDGPH) developed and tested an innovative technology-based intervention for use in the primary care setting called PreCHAT – Preconception Health Assessment Tool.

PreCHAT

- A patient-driven electronic PCH risk assessment tool for individuals of reproductive age.
- A comprehensive tool that identifies PCH risks related to: genetics, nutrition, body mass index, physical activity, reproductive and sexual health, chronic and infectious diseases, vaccinations, mental health, stress, medications, substance use, environmental exposures and more.
- Delivered using a health information technology platform called Ocean by CognisantMD.

Research Goals

VALIDATE a new Preconception Health Assessment Tool (PreCHAT) against the current best practice tool in Ontario

EXPLORE how PreCHAT's design impacts its risk identification abilities relative to the comparison tool.

Research Methods

Design: A criterion validation study of PreCHAT was conducted in 2018. This study compared PreCHAT with an existing measure currently available for use by primary care providers in Ontario.[2] All participants: (1) completed PreCHAT independently on a tablet and (2) met with a physician who completed the comparison tool during a 20-minute interview. Three primary care physicians administered the comparison tool.

Tools: PreCHAT is a patient-driven tool whereas the comparison tool is a primary care provider-led tool.
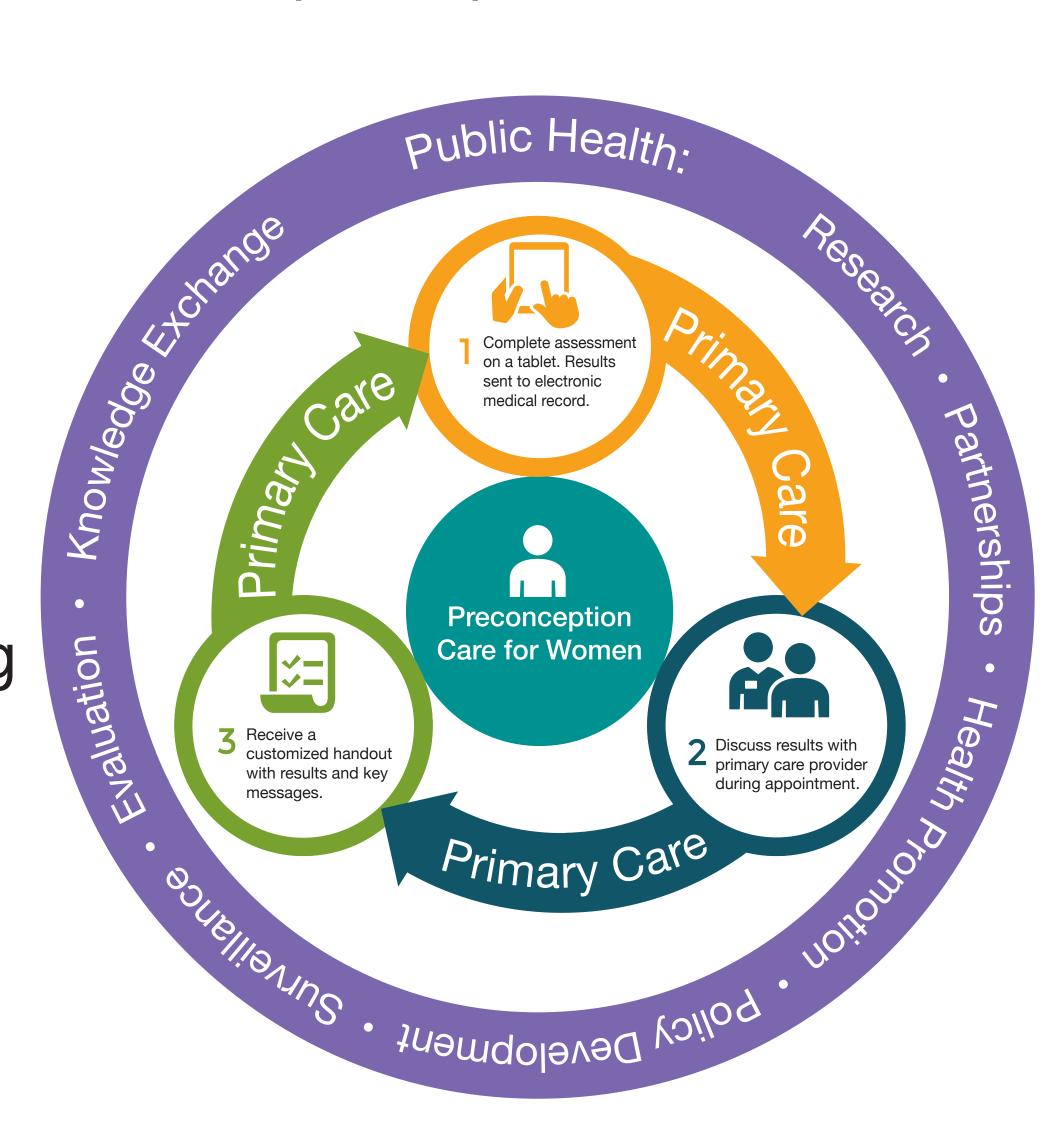
Eligibility: Female, aged 18 to 44 years, not pregnant but physically able to become pregnant, able to read and write English and residents of the WDGPH area.

Data collection: There were two methods of data collection: (1) from participants completing PreCHAT and (2) from physicians completing the comparison tool with participants. A $50 gift card incentive was offered to participants.completing PreCHAT and (2) from physicians completing the comparison tool with participants. A $50 gift card incentive was offered to participants.

STEP 1: Complete PreCHAT on a tablet in a primary care provider office with results automatically uploaded into the patient's electronic medical record (EMR).

STEP 2: Discuss results with a primary care provider during appointment.

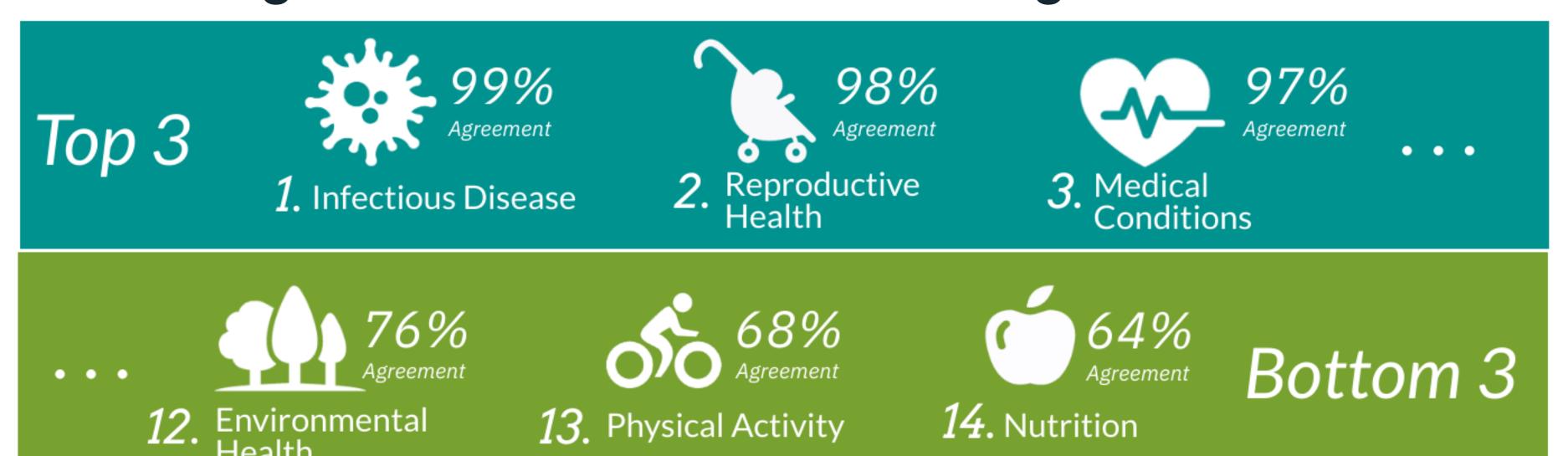**STEP 3**: Receive a customized patient handout with results and key messages.
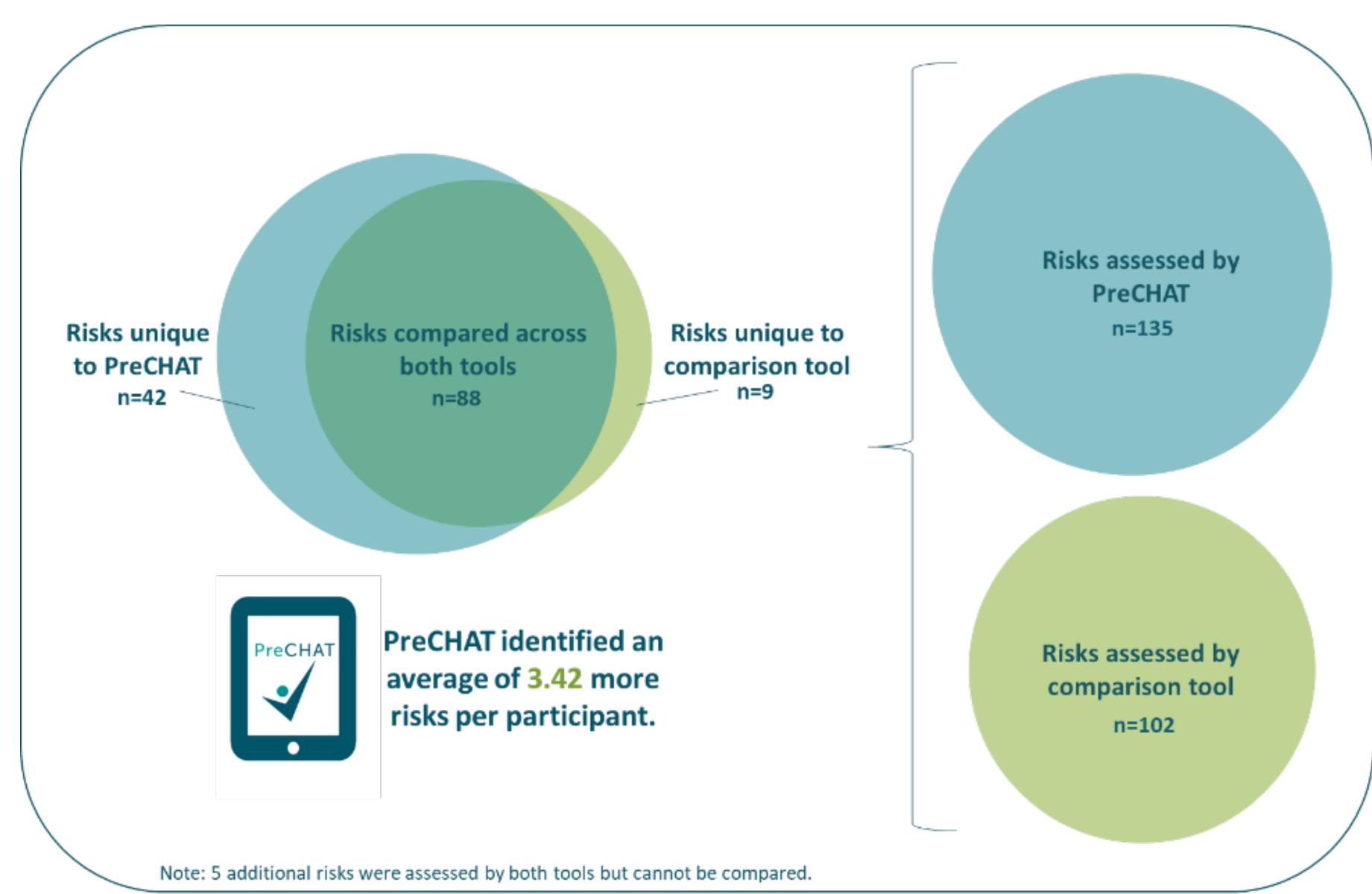

Research Findings

Participants: A total of 53 individuals participated in the study. The sample was stratified by age and education. The majority of participants were 25 to 44 years old (75%) and graduates of college, university or trade school (58%).

Strength of Agreement: Strength of agreement between PreCHAT and the comparison tool was assessed using the following measures: percent agreement, Cohen's Kappa, and PABAK. The graphic below describes the highest and lowest scoring risk categories according to their percent agreement.
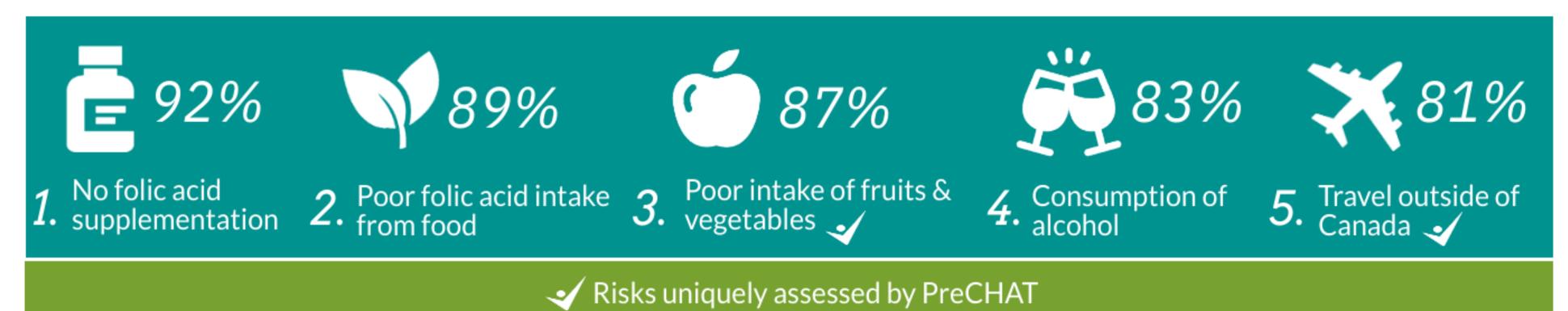
Percent Agreement Across 14 Risk Categories

Top 3
- 1. Infectious Disease — 99% Agreement
- 2. Reproductive Health — 98% Agreement
- 3. Medical Conditions — 97% Agreement

Bottom 3
- 12. Environmental Health — 76% Agreement
- 13. Physical Activity — 68% Agreement
- 14. Nutrition — 64% Agreement

Risks Identified Across Both Tools

Risks unique to PreCHAT n=42

Risks compared across both tools n=88

Risks unique to comparison tool n=9

Risks assessed by PreCHAT n=135

Risks assessed by comparison tool n=102

PreCHAT identified an average of 3.42 more risks per participant.

Note: 5 additional risks were assessed by both tools but cannot be compared.

Most Prevalent Risk Factors Identified by PreCHAT

1. No folic acid supplementation — 92%
2. Poor folic acid intake from food — 89%
3. Poor intake of fruits & vegetables ✓ — 87%
4. Consumption of alcohol — 83%
5. Travel outside of Canada ✓ — 81%

✓ Risks uniquely assessed by PreCHAT

Limitations

Study limitations that may have influenced agreement included: small sample size, recruitment quota for individuals with high school diploma or less not met, lack of comparison tool instructions for physicians, inconsistent implementation of comparison tool, insufficient time to complete comparison tool for some participants, social desirability bias and differences in design and delivery of tools.

Conclusions & Recommendations

PreCHAT is an innovative PCH intervention that proves to be an efficient and effective tool to assess PCH risks among individuals of reproductive age. The study validated PreCHAT against the best practice tool currently available for use in Ontario. PreCHAT identified a broader range of PCH risks and identified more risk factors when compared to this tool.

PreCHAT is the first of its kind in Canada. It is a validated, evidence-based, population health approach designed for use in the primary care setting that can help to improve reproductive, maternal and child health outcomes.

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