TeenDrivingPlan
Initial Use Evaluation of
a User-Centered Designed Prevention Intervention

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Acknowledgment

Colleagues at CIRP and CHOP in this work.

This material is based upon work supported by:

National Science Foundation Accelerating Innovation Research; PA Dept of Health and State Farm Insurance Companies

PI's for TeenDrivingPlan Study:
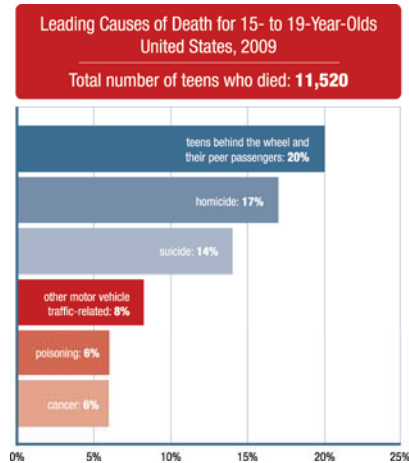
Dennis Durbin, MD MSCE

Jessica Mirman, PhD

While I talk...

1000

people under age 25
will die
on the world's roads.

UN Decade of Action for
Road Safety (2011-2020)

Deaths when teens behind wheel (US)

- One in five deaths to 15 to 19-year-olds in the U.S.
- Five times deaths due to cancer

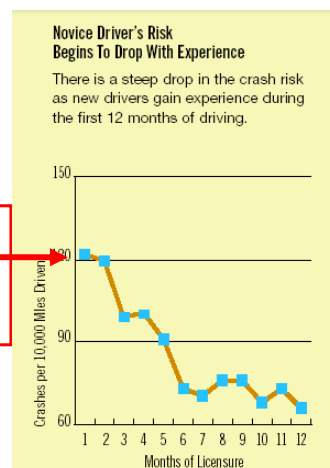**Leading Causes of Death for 15- to 19-Year-Olds United States, 2009**
Total number of teens who died: **11,520**

teens behind the wheel and their peer passengers: **20%**
homicide: **17%**
suicide: **14%**
other motor vehicle traffic-related: **8%**
poisoning: **6%**
cancer: **6%**

0%   5%   10%   15%   20%   25%

Timeline for safety

Learner phase:

Lowest lifetime risk of crashing

Time Zero
Independent driving

Novice Driver's Risk Begins To Drop With Experience

There is a steep drop in the crash risk as new drivers gain experience during the first 12 months of driving.

Crashes per 10,000 Miles Driven

150

120

90

60

1 2 3 4 5 6 7 8 9 10 11 12
Months of Licensure

Main causes for novice teen crashes

- Inexperience
  - Too fast/too close
  - Poor scanning   Need: improve skill
- Distraction/inattention

FOCUS OF THIS PREVENTION INTERVENTION:
- **Improve the skills** of novice teen drivers through **improved practice driving**

CIRP Process for Web Interventions

1. Design
   - Grounded in theory & formative research
2. Execution
   - Grounded in user-centered design & testing; process evaluation; revision
3. Evaluation
   - Grounded in clinical trials BUT pragmatic
4. Dissemination
   - Grounded in Web marketing
5. Monitoring and revisions

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TeenDrivingPlan – 1. Design
Theory & Formative Research

Behavioral Objective

Improve *quantity*, *quality*, and *diversity* of teens' practice driving.

Target Constructs

– Parent Knowledge – Common errors, practice activities, and signs of mastery

– Parent-Teen Relationship Quality – Warmth, trust and social support

– Parent Practice Facilitation Skills – Plans, logs, and provides feedback

– Parent Perceived Barriers to Practice

– Parent Self-Efficacy

TeenDrivingPlan – 2. Execution
Home Page
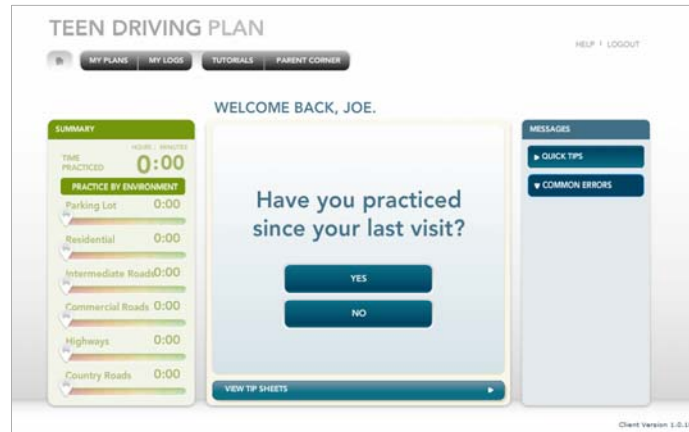
TeenDrivingPlan – 2. Execution
Parent Corner & Library of Tutorials
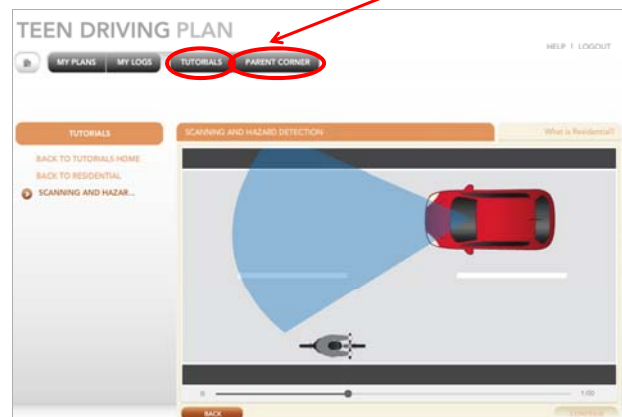
TeenDrivingPlan – 2. Execution
Practice Planner: Environments/Goals

TeenDrivingPlan – 2. Execution
Tip Sheets

TeenDrivingPlan – 2. Execution
Practice Logger

TeenDrivingPlan – 2. Execution
Summary – Driving Practice Log

TeenDrivingPlan – 3. Evaluation
Grounded in clinical trials model

- Study design
  - 2-arm randomized trial; pragmatic control group; longitudinal (6 months total); 520 parent/teen dyads
- Process Outcomes
  - Detailed use statistics – **FOCUS OF THIS TALK**
- Intermediate & Main Outcomes
  - Goal: Skill mastery
  - Behavior: Practice driving (diversity, quality, quantity)
  - Target constructs: e.g., parent facilitation skills

GENERAL USE STATISTICS
(FIRST 276 PARENT/TEEN DYADS)

Number of log-ins
Skewed distribution

	Log-ins
Min	0
Q1	3
Median	7
Q3	13
Max	62

Y-axis: # of Dyads (n = 276)
X-axis: # of Log-ins to TDP
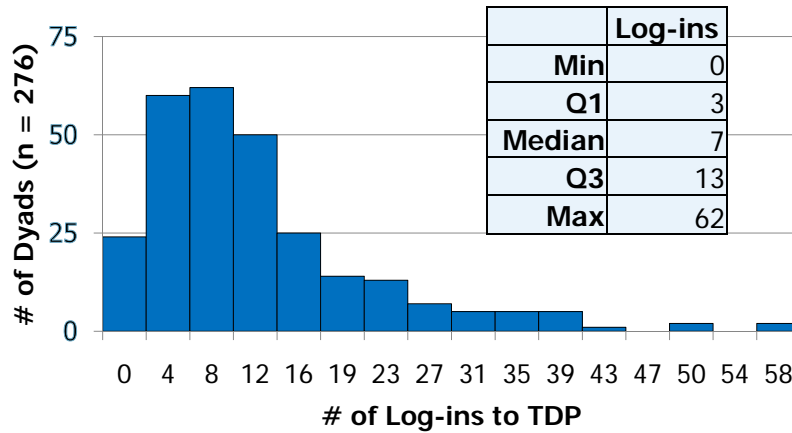
Time on site
Skewed distribution

	Time
Min	0
Q1	30
Median	78
Q3	191
Max	8601

Y-axis: # of Dyads (n = 276)
X-axis: Time Spent on TDP (mins)
Note scale change after 300 minutes
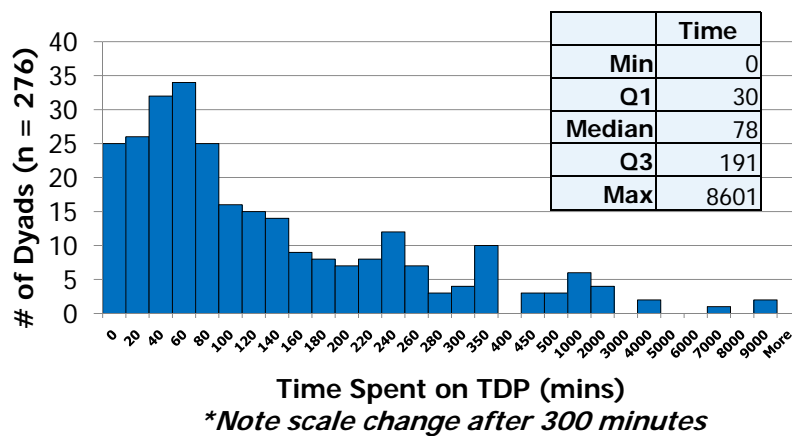
Use of site by week in study
Drop off over time
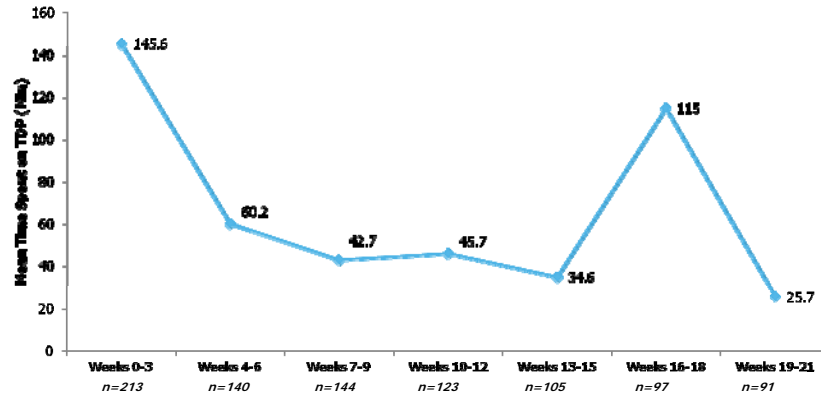
Note: Limited to dyads logging-in at least once (91% of total)

SPECIFIC USE STATISTICS

Which components were used?

- 1,982 total tutorial videos viewed
  - Per dyad (Median=5)
  - 7 of 50 tutorial videos represented ~50% of all tutorials viewed
- 393 total planned drives
  - Per dyad (Median=1)
- 4,902 total logged drives
  - Per dyad (Median=9)

Conclusions

- Extensive formative research, user-centered design and a process evaluation, but...
  - Limited use, use dropped off over time
- Typical use:
  - Watched videos & logged drives
  - Little planning
- Long tail – some high users – who were they?
  - Inherent planners?
  - Were they more motivated (challenges)?

Lessons learned

- Watch > Log > Plan
  - Most passive activity is most common
- Prevention intervention may require more than Web
  - Need incentives/reminders/human?
- Tracking specific use is essential
  - Helps to guide future development
- Randomized trial was successful, but might benefit from other designs