The Children's Hospital of Philadelphia
RESEARCH INSTITUTE

SYSTEMATIC APPROACH TO TRAFFIC SAFETY

PROGRAMS: DESIGN, SELECTION, EVALUATION

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Lifesavers Conference
April 2014

GOALS FOR WORKSHOP

- **Formal presentation**
  - Understand elements of a Logic Model
  - See how the structured approach can be applied to road safety (ex: child passenger safety)
  - Understand difference between Logic Model and Program Theory and how they work together

- **Group work**
  - Apply your background to strategically plan activities to improve teen driver safety using a systematic approach

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CENTER FOR INJURY RESEARCH AND PREVENTION
THE CHILDREN'S HOSPITAL OF PHILADELPHIA RESEARCH INSTITUTE

Dedicated to advancing the safety of children, youth and young adults through research and action.

- Comprehensive
  From *Before-the-Injury* prevention
  To *After-the-Injury* healing

- Interdisciplinary
  Behavioral science ,clinical care, engineering , epidemiology, public health and communications

- Engaged
  Large network of partnerships with universities, government, industry and non profit sector

- Translational
  Practical tools & recommendations for families, professionals and policymakers

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INJURY: LEADING CAUSE OF CHILD DEATH/DISABILITY
EVIDENCE-BASED RESOURCES ARE AVAILABLE.
HELP SPREAD THE WORD...

1 Prevent the **crash**
 teendriversource.org

2 Prevent crash & other **injury**
 chop.edu/carseat

3 Promote **injury recovery**
 AfterTheInjury.org
 chop.edu/concussion

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KEY CONCEPTS OF LOGIC MODEL

- **Focus with clear step-wise goals**
  - What change do you hope to see, by whom, over what time period?
- **Actions tied to true outcomes**
  - Evidence-based "If-Then" relationships
  - Measureable outcomes – verify or revise
- **Outcomes are realistic**
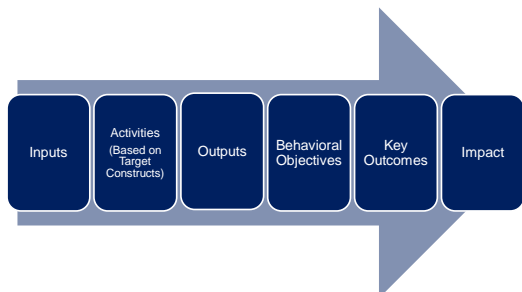 - Recognizes available resources, time frame

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LOGIC MODEL STRUCTURE

Inputs → Activities (Based on Target Constructs) → Outputs → Behavioral Objectives → Key Outcomes → Impact

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STEP 1: DEFINE SMART KEY OUTCOMES & BEHAVIORAL OBJECTIVES

Plan in opposite direction

Behavioral Objectives | Key Outcomes

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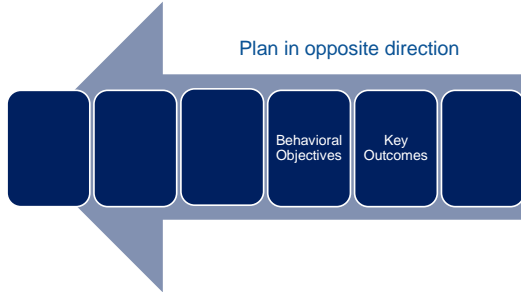
STEP 1.1 DEFINING SMART OUTCOMES & OBJECTIVES

- **Specific**
  - Concrete, detailed, well defined; how will you know when you succeeded?
- **Measureable**
  - Numbers, metrics – allow for monitoring, comparisons
- **Achievable**
  - Must be feasible & room to change
- **Realistic**
  - Think about constraints (resources, time frame, population)
- **Time-Bound**
  - Over what time frame?

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SMART: QUESTIONS TO ASK YOURSELF

Specific	Measurable	Achievable	Realistic	Time-Bound
Is the outcome described with strong action verbs such as conduct, develop, build, plan, or execute?	How will we know that change has occurred? (What are the metrics?)	Can it be done in the proposed timeframe?	Do we have the resources available to achieve this outcome?	Over what time frame does this outcome need to be achieved?
Who will be involved? Did we get their input?	How will we collect metrics?	Are the limitations and constraints understood?	Is it possible to achieve this outcome?	
Are actions assigned to specific people/groups?		Can we achieve this outcome with the resources available?	What is the baseline for the population? Their priorities?	
Will this outcome lead to the desired results?				

Adapted from the CDC

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STEP 1.2: OUTCOMES WITHIN REACH
TOO LONG TERM? BREAK THEM DOWN

- Break the long-term outcome down into chunks.
- Create **achievable** intermediate outcomes to keep progress on track
- Remember– break into "If-Then" steps

- Long-term outcomes (e.g., 7-10 years)
- Intermediate-term outcomes (e.g., 4-6 years)
- Short-term outcomes (e.g., 1-3 year)

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EXAMPLE

- **Long-term**
  - The "Key Outcome"
  - Reduce child (age <16 years) passenger safety deaths in the US by 50% over 10 years
- **Medium term**
  - Increase appropriate child restraint use and rear-seating by 50% for US children through age 12 years
- **Shorter-term**
  - Increase belt-positioning booster seat use by 50% for US children ages 4-8 years of age

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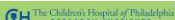
STEP 1.3: DEFINE BEHAVIORAL OBJECTIVES
OUTCOMES DON'T JUST HAPPEN…
SOMEONE NEEDS TO DO SOMETHING

- Key outcome: "the prize"
  - Reduce injuries

- BUT key outcome is broad, so…
  - What behavior leads to key outcome?
  - Who needs to do it?

Key Outcome
↓injuries

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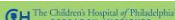
LOOK AT SCIENCE: SEAT BELT SYNDROME

- Poorly positioned lap and shoulder belts
- Submarining or flexion about belt
- Injuries
  - Spine
  - Abdomen
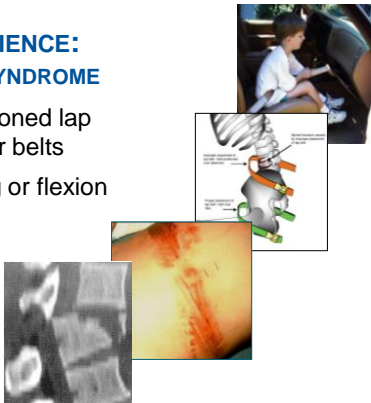
AN EVIDENCE-BASED SOLUTION
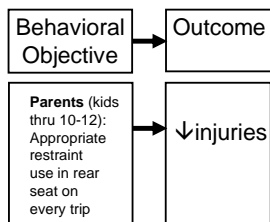## PARENTS: USE APPROPRIATE RESTRAINTS

Booster Seat

EXAMPLE: BEHAVIORAL OBJECTIVE

Behavior: Action by person under circumstance

Behavioral outcome: Measurable behavior
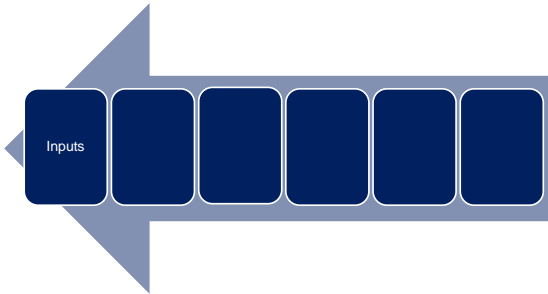
Consider: Salience, impact on Key Outcome

Behavioral Objective	→	Outcome
Parents (kids thru 10-12): Appropriate restraint use in rear seat on every trip	→	↓injuries

STEP 2: TAKE STOCK OF YOUR RESOURCES

Inputs

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INPUTS DRIVE THE SMART OUTCOMES & OBJECTIVES

- Take stock of your available "inputs" and redefine outcomes, as appropriate
  - Funding
  - People
  - Expertise
  - Partnerships
  - Etc.

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STEP 3: DEFINE PROGRAM ACTIVITIES
MUST BE LINKED TO BEHAVIORAL OBJECTIVES
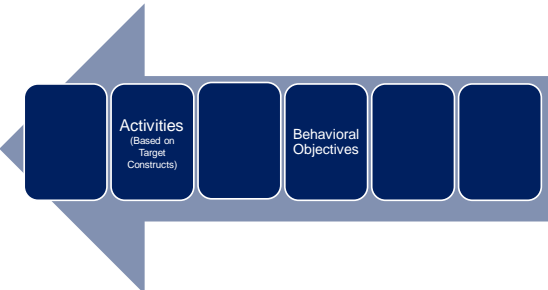
Activities (Based on Target Constructs)

Behavioral Objectives

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DEFINE YOUR ACTIVITIES SYSTEMATICALLY – ITS TIME FOR PROGRAM THEORY

- Exactly what will you do to achieve your outcome?

- Your activities need to have clear, defendable links to the outcomes.

- A **Program Theory** can act as a compass to guide your detailed planning & evaluation.

STEP 3.1: REMEMBER BEHAVIORAL OBJECTIVE

Behavioral Objective: Specific action by specific person in specific circumstance
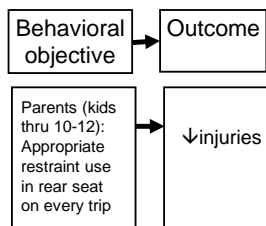
Behavioral objective	→	Outcome
Parents (kids thru 10-12): Appropriate restraint use in rear seat on every trip	→	↓injuries

STEP 3.2: UNDERSTAND THE BEHAVIOR
WHY DO/DON'T PEOPLE DO IT

- Ask your target audience **7 questions**:
  1. Advantages?
  2. Disadvantages?
  3. What would make it easier?
  4. What would make it harder?
  5. Who wants you to perform the behavior?
  6. Who doesn't want you to perform the behavior?
  7. How much do their opinions matter to you?

UNDERSTAND THE BEHAVIOR
WHY DO/DON'T PEOPLE DO IT?

- Norms
  - Other parents aren't using them
  - "If it were important enough, it would have been a law."
- Self-efficacy
  - Didn't know how to use booster
- Knowledge
  - Didn't know of the injuries that could happen
- Beliefs
  - Boosters are not better than belts

Winston, Erkoboni, et al. J of Trauma. Sept 2007

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STEP 3.3: DETERMINE TARGET CONSTRUCTS

Target Construct: <u>Specific</u> knowledge, belief, skill, factor that can be influenced

| Target Construct | → | Behavioral Objective | → | Outcome |
| Norm Self-efficacy Knowledge Beliefs | → | Parents (kids thru 10-12): Appropriate restraint use in rear seat on every trip | → | ↓injuries |

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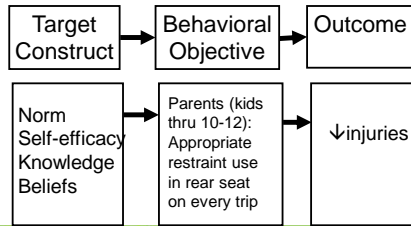
STEP 3.4: CHOOSE ACTIVITY(IES)

- Must address target constructs
  - Room to change, feasible to change
- Must be as simple as possible & engaging
- Must match content to context
- Adapt or develop?
  - Review existing interventions before starting from scratch
  - Remember to look beyond specific field of interest (eg., traffic safety)
  - If starting from scratch, requires formative research and an open mind

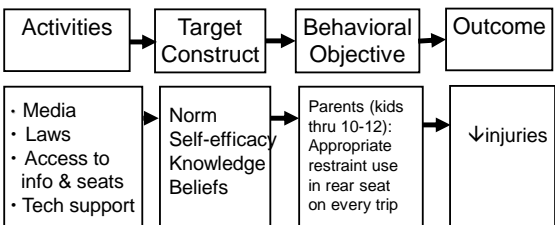24 | The Children's Hospital of Philadelphia RESEARCH INSTITUTE   CENTER FOR INJURY RESEARCH AND PREVENTION

EXAMPLE

Activity content: <u>Specific</u> message, interaction, info, etc.
Consider: Influence on TC, format, delivery, target person

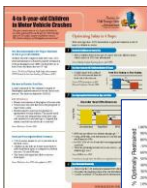| Activities	Target Construct	Behavioral Objective	Outcome
· Media · Laws · Access to info & seats · Tech support	Norm Self-efficacy Knowledge Beliefs	Parents (kids thru 10-12): Appropriate restraint use in rear seat on every trip	↓injuries

EXAMPLE: SPECIFIC ACTIVITY
PROVIDE PUBLIC AND PROFESSIONAL EDUCATION

Summary Reports on Issues

Fact sheets

Educational Images
Charts and graphs

EXAMPLE: SPECIFIC ACTIVITY
ENHANCE CHILD RESTRAINT LAWS
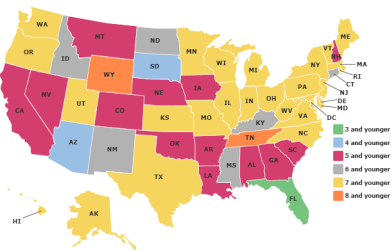
In 2011, 48 state and 2 federal laws – new norm

Source: www.IIHS.org

EXAMPLE: SPECIFIC ACTIVITY
PROVIDE WEB ACCESS TO RESOURCES

http://www.chop.edu/carseat

Content also available in Spanish

STEP 4: DEFINE OUTPUTS
MEANINGFUL MEASURES OF ACTIVITY
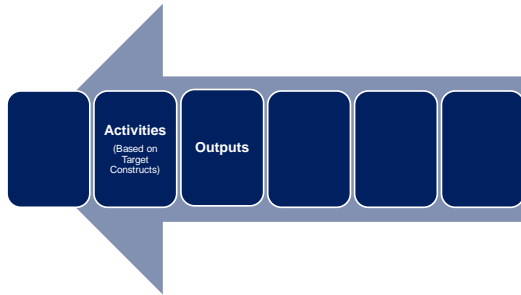
OUTPUTS =
DIRECT PRODUCTS OF PROGRAM ACTIVITIES

- Meaningful measures of activity fidelity
  - Was the activity conducted as intended?
  - Did it reach adequate metrics? SET TARGETS
- Examples:
  - # Visits to website
  - # Laws passed
  - # Participants at a "car seat check"
  - # booster seats given away

STEP 5: MEASURE IMPACT
MAY REQUIRE EXTERNAL DATA SOURCE
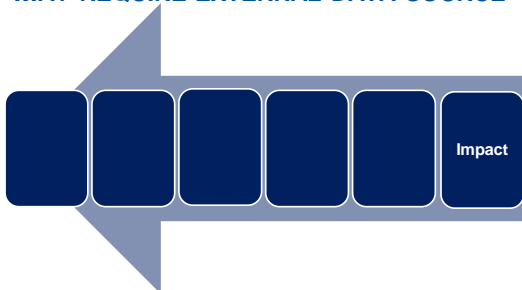
Impact

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STEP 5.1: SHORT-TERM IMPACT (BO)
CHILD RESTRAINT USE OVER TIME

Age in Years

■ 1999
■ 2007
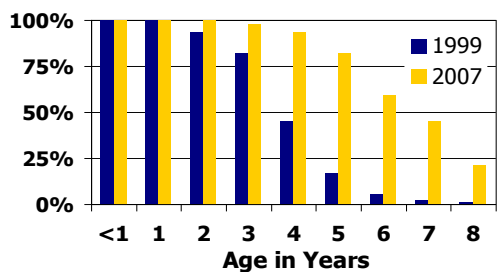
Source: Partners for Child Passenger Safety

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STEP 5.2: LONG-TERM IMPACT (KO)

Nearly 50% reduction in deaths to children < 16
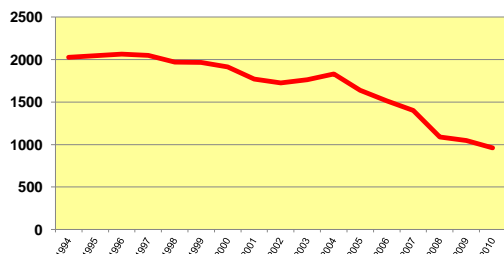
Over 7500 lives saved since 1997

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NHTSA FARS

GROUP ACTIVITY:
LET'S SAVE TEEN LIVES!

SMALL GROUP ACTIVITY:
DESIGN A YOUNG DRIVER SAFETY PROGRAM

- You are a local NGO with a grant to implement a Young Driver Safety program
  - to help decrease teen driver crash-related injuries and fatalities.
  - $250,000/ year over 3 years???
- Program needs to address at least one key crash injury causation factor:
  - Low seat belt use, driving inexperience/immaturity, impaired driving, distracted driving
- Refer to Group Handouts

SMALL GROUP ACTIVITY:
1. DEFINE OUTCOMES

- Step 1
  - What do you hope to achieve?
  - What does success look like?
  - How will you measure it?

- Step 2
  - Break down outcomes into long, medium and short-term with If-Then Statements.

SMALL GROUP ACTIVITY:
2. DEFINE BEHAVIORAL OBJECTIVES

- Step 1: Choose ONE of your short-term outcomes
- Step 2: Name all of the people/groups who have a role in achieving this outcome
- Step 3: Clearly define the behavioral objectives for each of these people/groups
  - **Who** will do **what** under **which circumstances**?

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SMALL GROUP ACTIVITY:
3. PRESENT BEHAVIORAL OBJECTIVES

- 2 minutes per group
- Questions and feedback

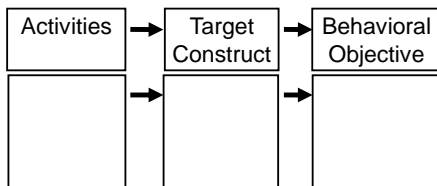38 |

WHOLE GROUP:
4. DETERMINE TARGET CONSTRUCTS

- Consider barriers and facilitators
- Target Constructs= specific knowledge, belief, skill, factor that can be influenced

| Activities | → | Target Construct | → | Behavioral Objective |
| | → | | → | |

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WHOLE GROUP:
5. DETERMINE ACTIVITIES

- Choose intervention that addresses target constructs, the room-to-change
- Specific message and activity?
- Adapt existing program or develop new?

- Link each activity to a target construct

HOMEWORK: (???)
6. MAKE IT REAL

- Refine based on available inputs
  - Staff, funds, partners, current environment/ laws, etc.
- What are those measurable short-term outputs?
  - How will you know that the activity was carried out as intended?
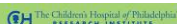 - What are your target metrics?

FOR MORE INFORMATION –
LOGIC MODELS AND PROGRAM THEORY

- Accessible from **teendriversource.org "I am a Researcher" portal:**
  - *Injury Prevention* journal article
  - W.K. Kellogg Foundation Logic Model Development Guide