Logic Modeling For Program Success: A Three-Step Approach

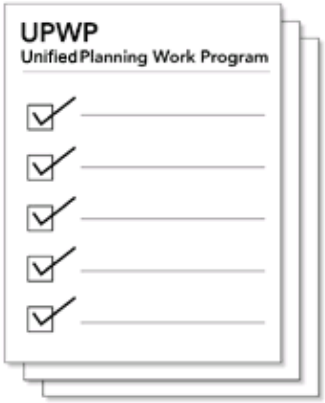
AES – August 2010
Renger, University of Arizona

- Placing Logic Modeling in Perspective of Evaluation Purposes
- Types of Logic Models & Common Elements
- Why Logic Modeling is Important
- Three Step ATM Approach to Logic Modeling

Purposes of Program Evaluation?

- Oversight and Compliance

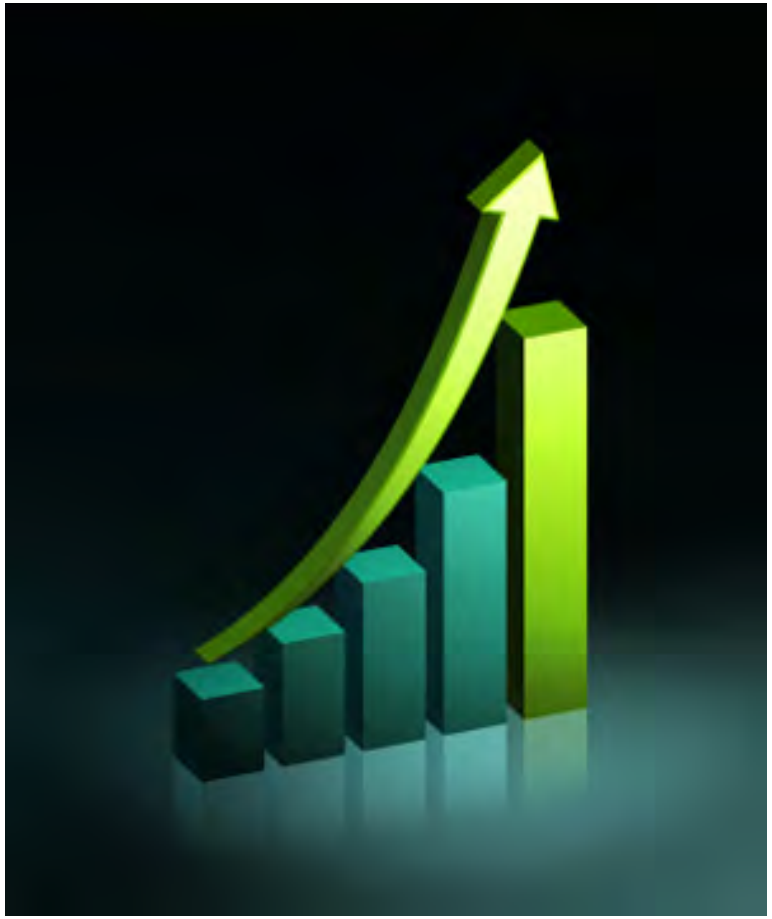
- Program Improvement



- Merit and Worth

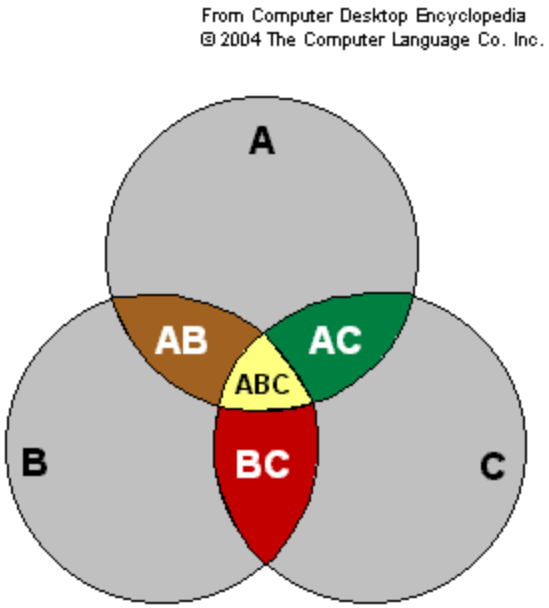
For Which Purpose is Logic Modeling Intended?

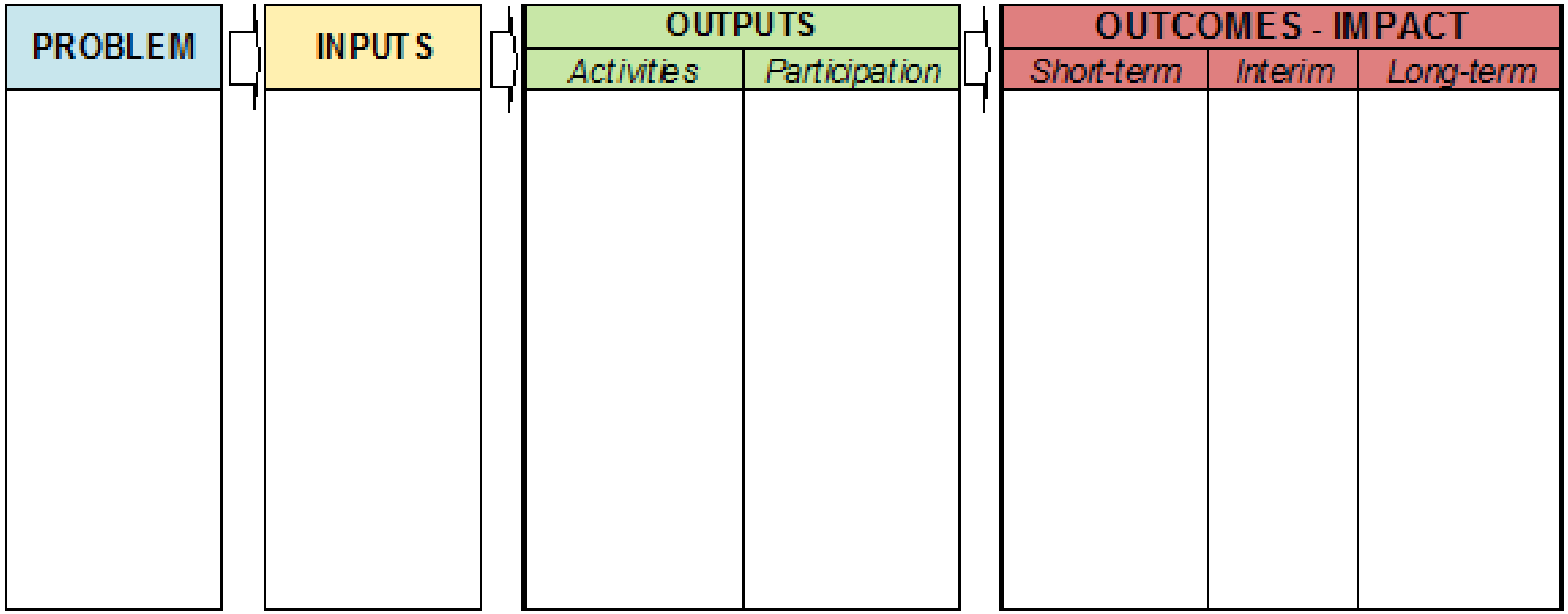
- When we want to know a program's:
  - Merit and worth.
  - Value
  - Impact
  - Outcome
  - What difference the program makes to participants.

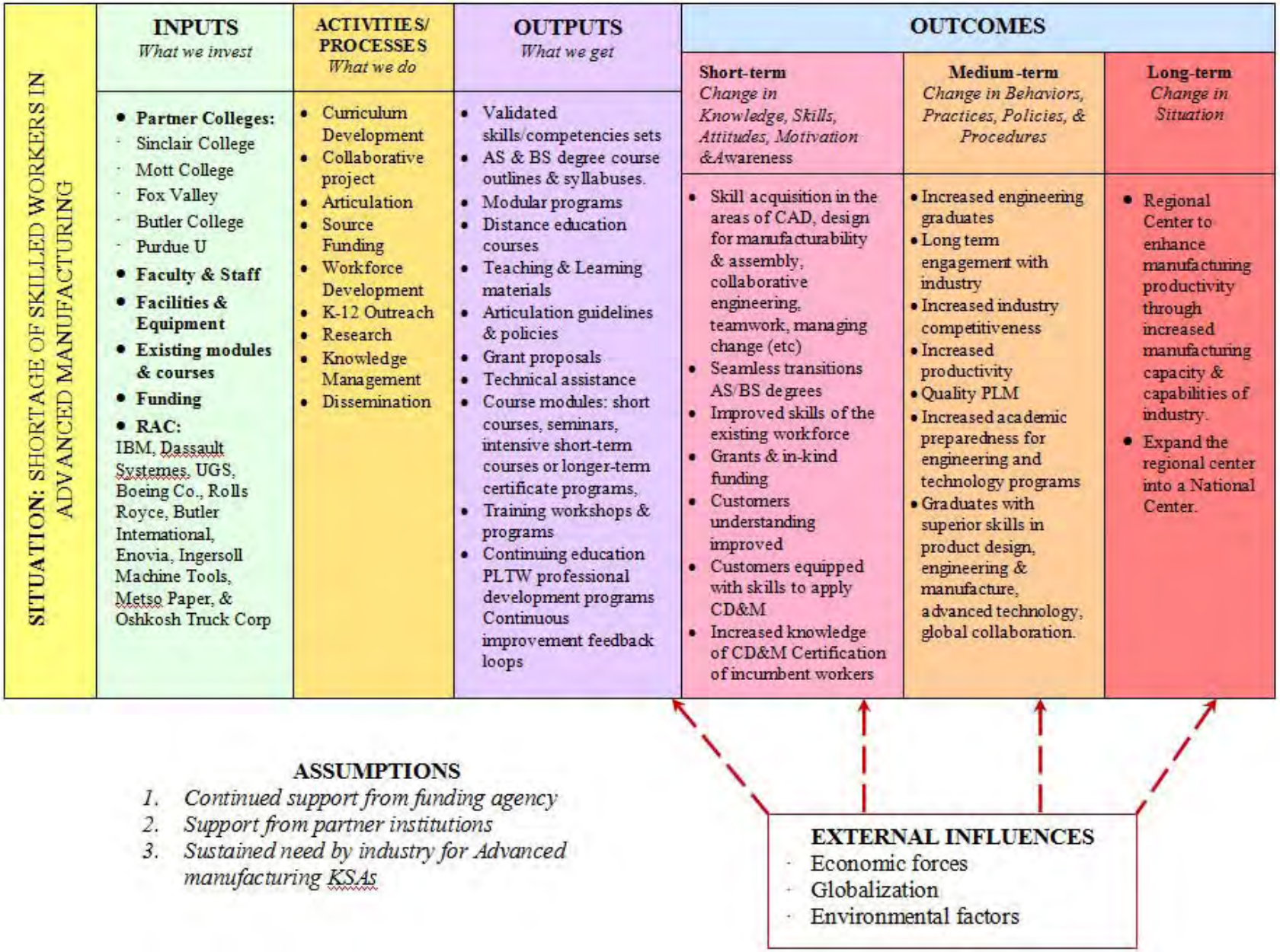


Types of Logic Models

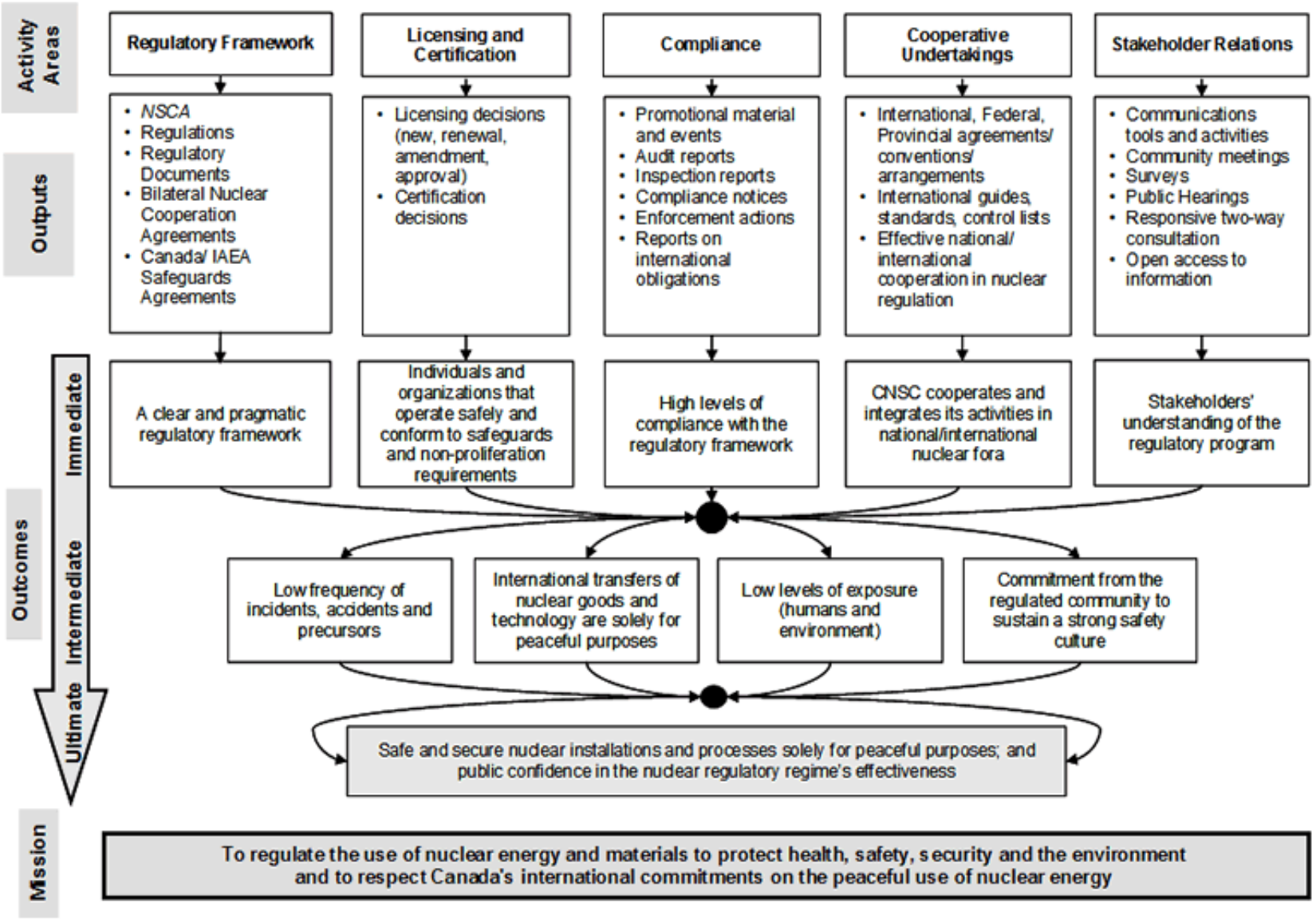
- There are many different types of LMs
- However all LMs share some key features.
- What are these common elements?




PROBLEM
INPUTS
OUTPUTS
Activities
Participation
OUTCOMES - IMPACT
Short-term
Interim
Long-term


SITUATION: SHORTAGE OF SKILLED WORKERS IN ADVANCED MANUFACTURING
INPUTS
What we invest
ACTIVITIES/ PROCESSES
What we do
OUTPUTS
What we get
OUTCOMES
Short-term
Change in Knowledge, Skills, Attitudes, Motivation &Awareness
Medium-term
Change in Behaviors, Practices, Policies, & Procedures
Long-term
Change in Situation
Partner Colleges:
Sinclair College
Mott College
Fox Valley
Butler College
Purdue U
Faculty & Staff
Facilities & Equipment
Existing modules & courses
Funding
RAC:
IBM, Dassault Systemes, UGS, Boeing Co., Rolls Royce, Butler International, Enovia, Ingersoll Machine Tools, Metso Paper, & Oshkosh Truck Corp
Curriculum Development
Collaborative project
Articulation
Source Funding
Workforce Development
K-12 Outreach
Research
Knowledge Management
Dissemination
Validated skills/competencies sets
AS & BS degree course outlines & syllabuses.
Modular programs
Distance education courses
Teaching & Learning materials
Articulation guidelines & policies
Grant proposals
Technical assistance
Course modules: short courses, seminars, intensive short-term courses or longer-term certificate programs,
Training workshops & programs
Continuing education PLTW professional development programs Continuous improvement feedback loops
Skill acquisition in the areas of CAD, design for manufacturability & assembly, collaborative engineering, teamwork, managing change (etc)
Seamless transitions AS/BS degrees
Improved skills of the existing workforce
Grants & in-kind funding
Customers understanding improved
Customers equipped with skills to apply CD&M
Increased knowledge of CD&M Certification of incumbent workers
Increased engineering graduates
Long term engagement with industry
Increased industry competitiveness
Increased productivity
Quality PLM
Increased academic preparedness for engineering and technology programs
Graduates with superior skills in product design, engineering & manufacture, advanced technology, global collaboration.
Regional Center to enhance manufacturing productivity through increased manufacturing capacity & capabilities of industry.
Expand the regional center into a National Center.
ASSUMPTIONS
1. Continued support from funding agency
2. Support from partner institutions
3. Sustained need by industry for Advanced manufacturing KSAs
EXTERNAL INFLUENCES
Economic forces
Globalization
Environmental factors

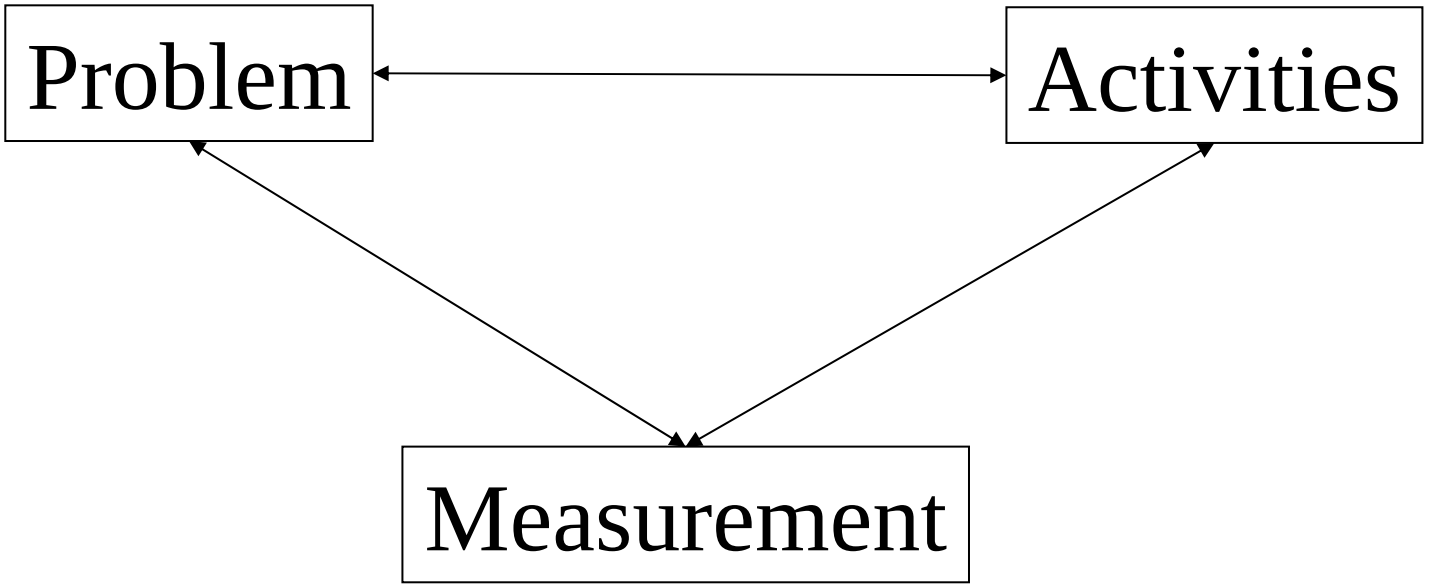
CNSC Logic Model – Results for Canadians



Common Key Elements?

- Problem
- Activities
- Outcomes

Logic modeling is a process/method to ensure three key elements are logically connected.



Remember: The Logic Model Table is usually a summary of a process

What happens if these three key elements are not logically connected?

- If problem and activities are not connected?
  - Activity Traps

- If activities and indicators are not connected?
  - Measuring the wrong thing
  - OMB – O&C data

Consequences if Elements are not Logically Connected?

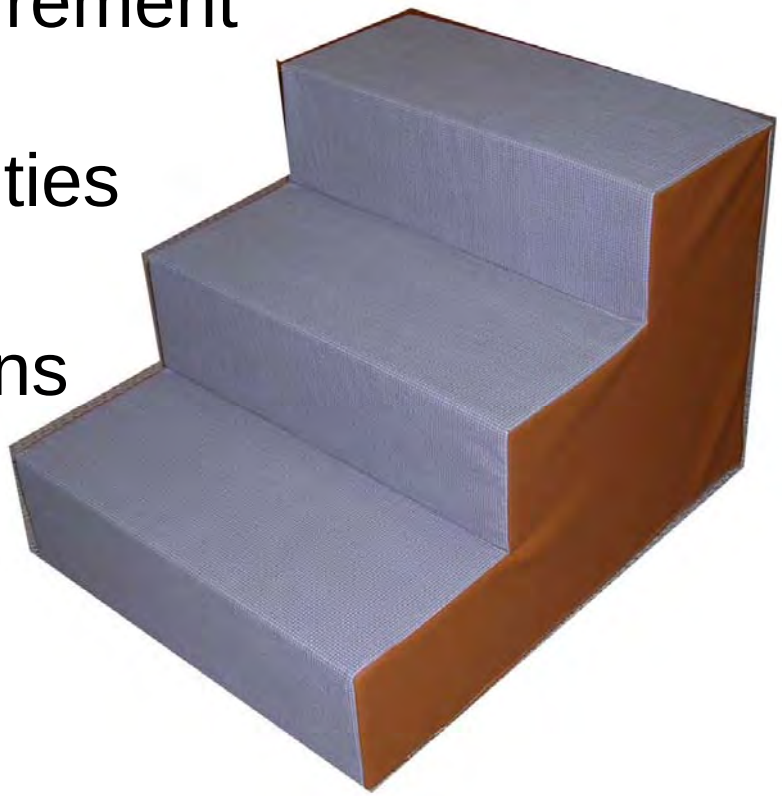
A 3 Step Process for Keeping Three Key Elements Connected:

ATM

Measurement

Target Activities

Antecedent Conditions



- If we want to evaluate the value/impact/merit and worth of a program where do we need to start with our logic modeling process?

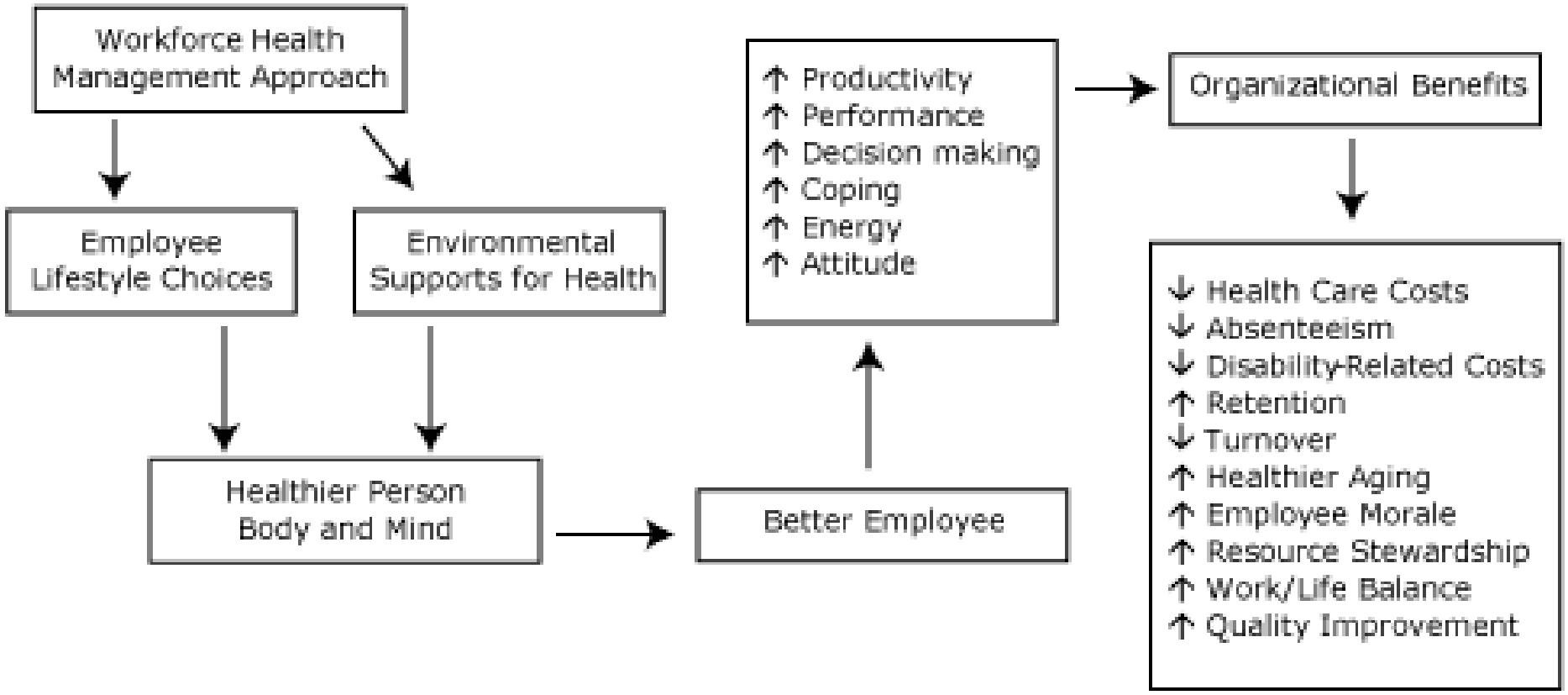
- What do we need to know about the program before we can design the evaluation plan for merit and worth?

- Program theory!

Program Theory

- “process through which program components are presumed to affect outcomes and the conditions under which these processes are believed to operate” (Donaldson, 2002, p. 22).

- Also called program assumptions

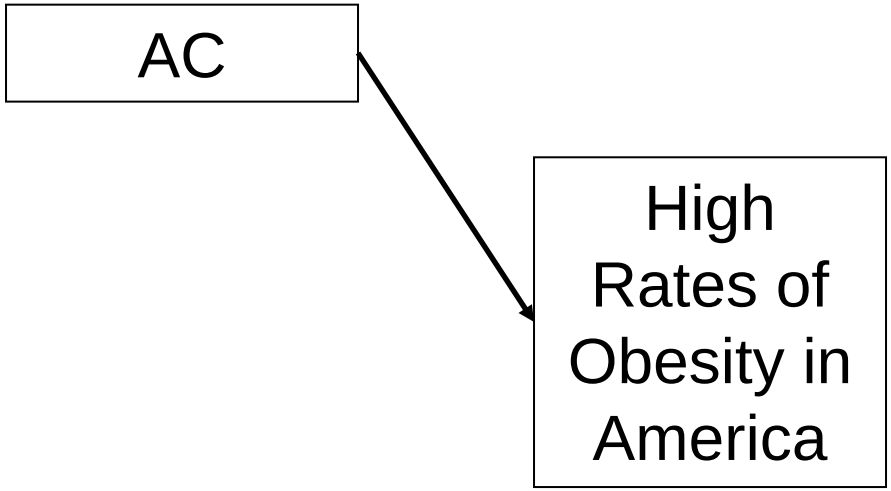

Workforce Health Management Approach
Employee Lifestyle Choices
Environmental Supports for Health
Healthier Person Body and Mind
Better Employee
↑ Productivity
↑ Performance
↑ Decision making
↑ Coping
↑ Energy
↑ Attitude
Organizational Benefits
↓ Health Care Costs
↓ Absenteeism
↓ Disability-Related Costs
↑ Retention
↓ Turnover
↑ Healthier Aging
↑ Employee Morale
↑ Resource Stewardship
↑ Work/Life Balance
↑ Quality Improvement

Step 1 – Antecedent Conditions – Building Program Theory

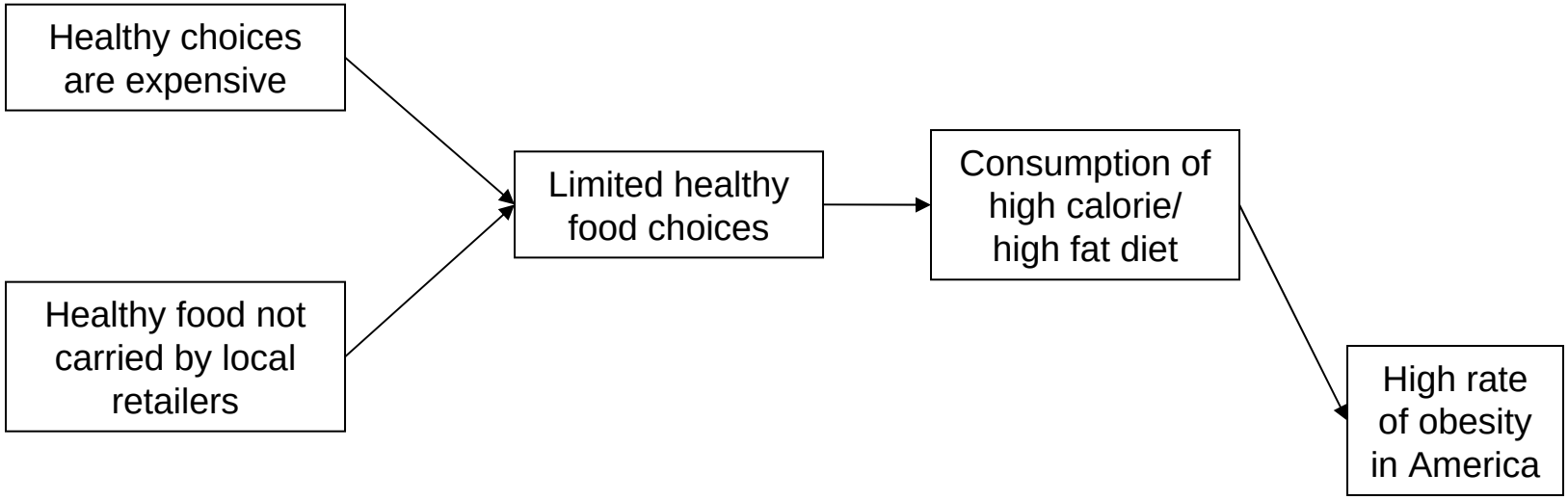
- Root Cause Analysis

Problem

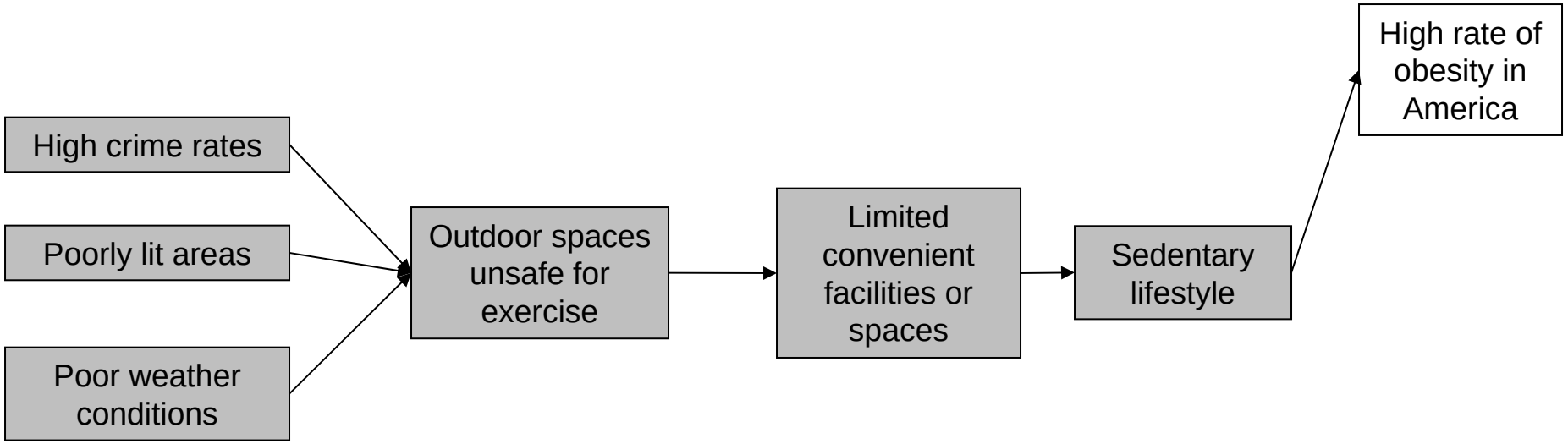

caglecartoons.com
GENERATION XXXL
GEN-ERATION X
CHILDHOOD OBESITY EPIDEMIC..


AC
High Rates of Obesity in America

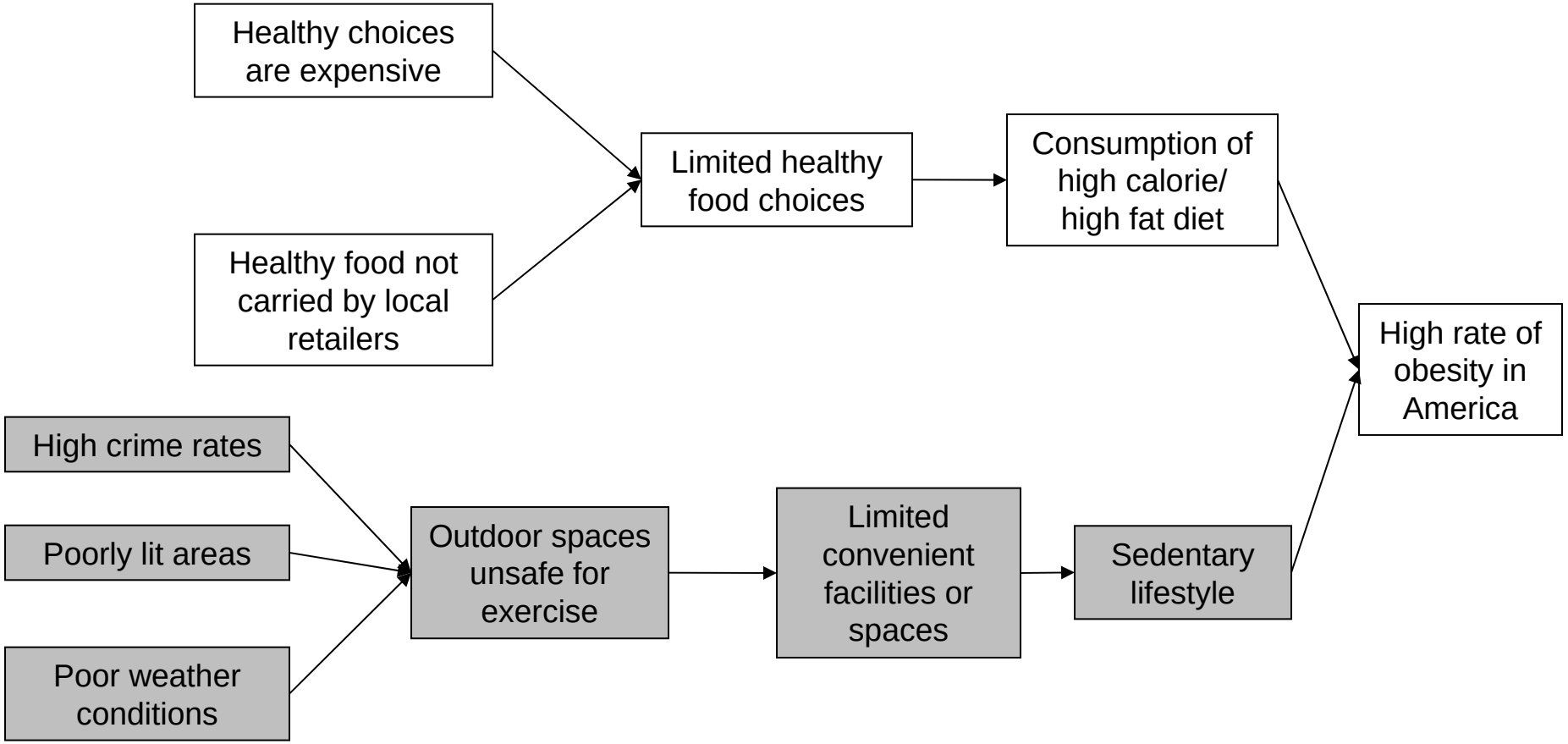
Interview Number 1



Interview Number 2



Combining Interviews

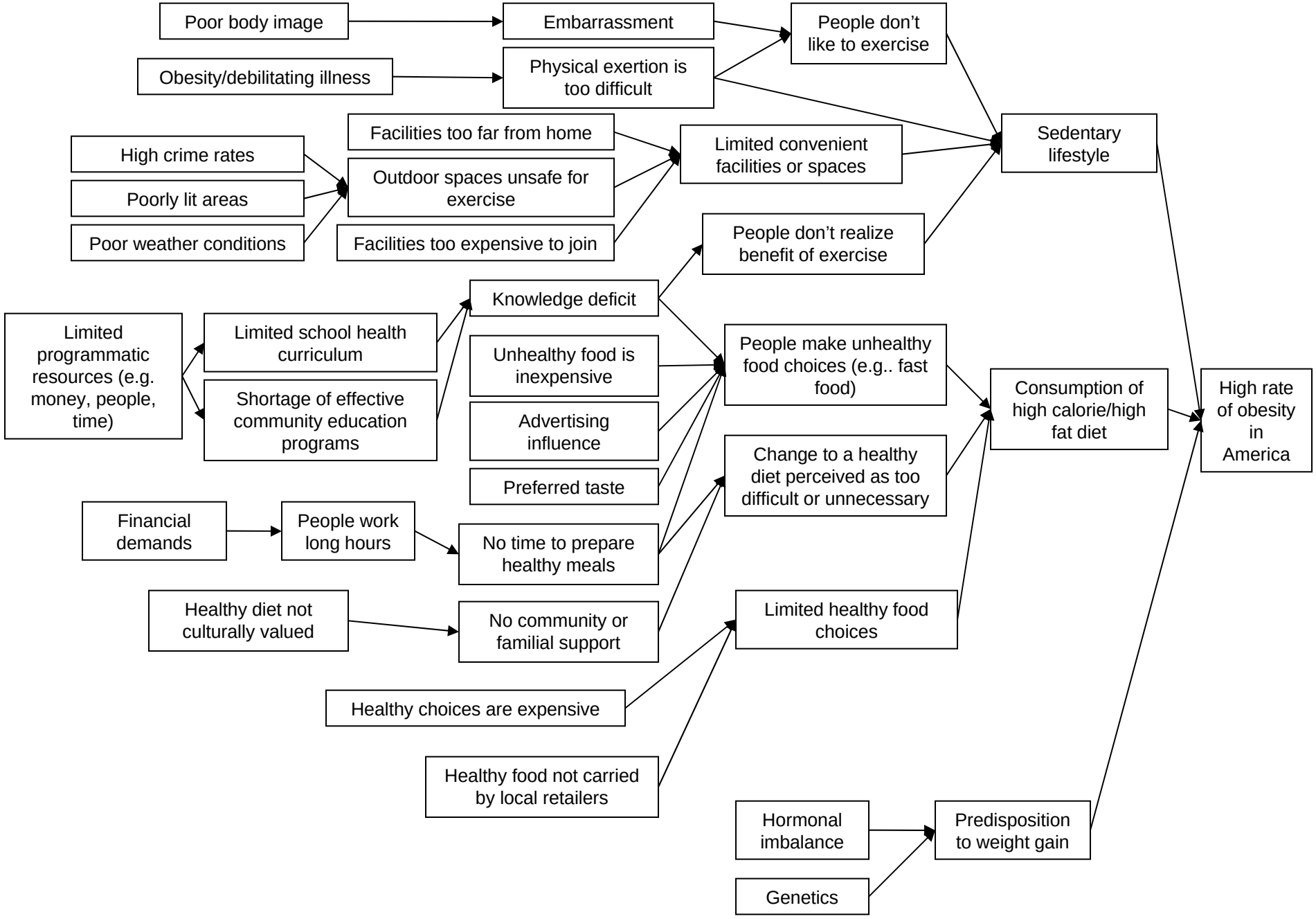


Finishing Step 1

- Check each interview with expert
- Combine interviews into summary map
- Back-up summary map with research
- Combination of expert input and research = evidence-based foundation

Other Ways to Develop the Program Theory?

- Literature Review
- What are drawbacks?
  - Evaluator must also be a content expert
  - If not an expert, will take too much time to develop
  - If developed by evaluator may not get buy-in from program staff.
  - If use program theory and program does not work who is held responsible?
- Reconstruction from Source Documents


Poor body image
Embarrassment
People don't like to exercise
Obesity/debilitating illness
Physical exertion is too difficult
Facilities too far from home
High crime rates
Limited convenient facilities or spaces
Sedentary lifestyle
Outdoor spaces unsafe for exercise
Poorly lit areas
Poor weather conditions
Facilities too expensive to join
People don't realize benefit of exercise
Knowledge deficit
Limited programmatic resources (e.g. money, people, time)
Limited school health curriculum
Unhealthy food is inexpensive
People make unhealthy food choices (e.g.. fast food)
Consumption of high calorie/high fat diet
High rate of obesity in America
Shortage of effective community education programs
Advertising influence
Change to a healthy diet perceived as too difficult or unnecessary
Preferred taste
Financial demands
People work long hours
No time to prepare healthy meals
Healthy diet not culturally valued
No community or familial support
Limited healthy food choices
Healthy choices are expensive
Healthy food not carried by local retailers
Hormonal imbalance
Predisposition to weight gain
Genetics

Step 2 - Target Activities

- Step 1 results in too many antecedent conditions for a program to target.
- Need a way to to narrow antecedent conditions to those over which program has control to change.

Prioritization Criteria

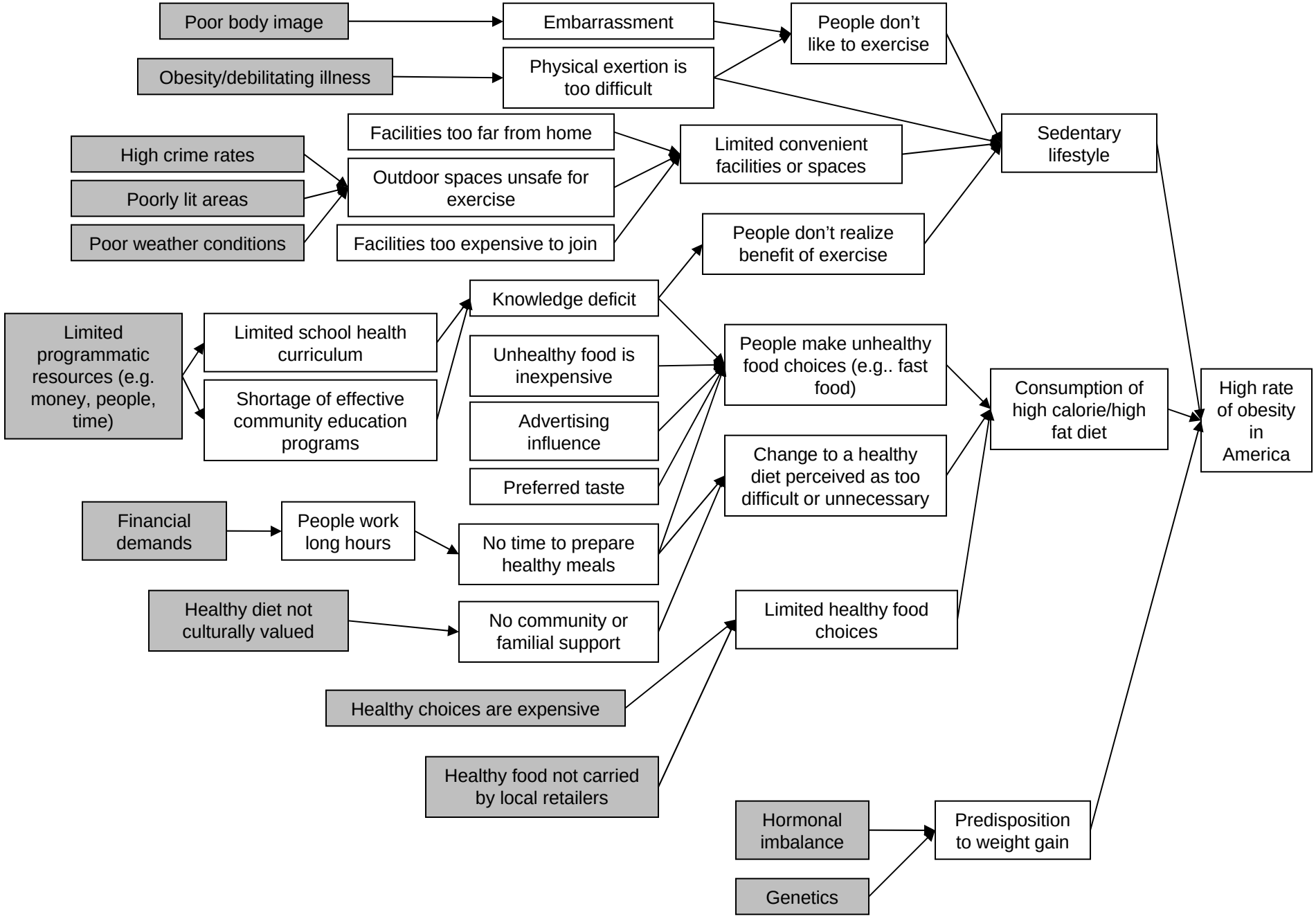
- What factors might a program consider in determining which antecedent conditions it could target for change?

Scenario

- The mission of the Center for Healthier America (CHA) is to promote the prevention and reduction of chronic diseases through infrastructure development and education for behavior change.
- The CHA has decided to develop programs addressing the high rate of obesity in Tucson, Arizona.
- The CHA has received $500,000 to develop programs over the next two years that target the factors contributing to the obesity rate in Arizona.

What are some possible prioritization criteria?

Antecedent Conditions	Within the mission of CHA? (Yes/No)	Changeable within 2 years? (Yes/No)	Feasible given available budget? (Yes/No)
High crime rates			
Poorly lit areas			
Poor weather conditions			
Poor body image			
Obesity/debilitating illness			
Limited programmatic resources (e.g. money, people, time)			
Financial demands			
Healthy diet not culturally valued			
Perception Healthy choices are expensive			
Healthy food not carried by local retailers			
Hormonal imbalance			
Genetics			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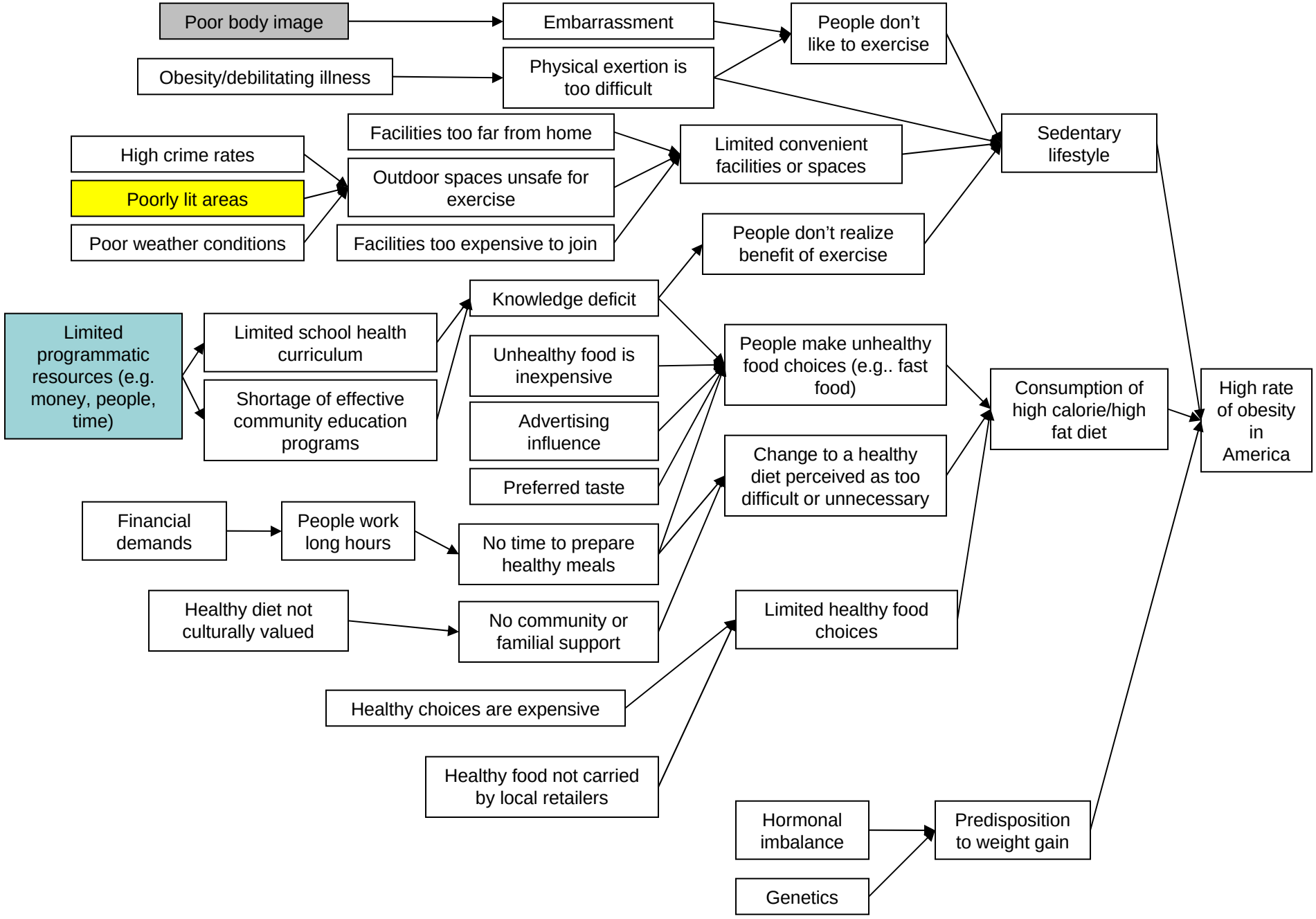
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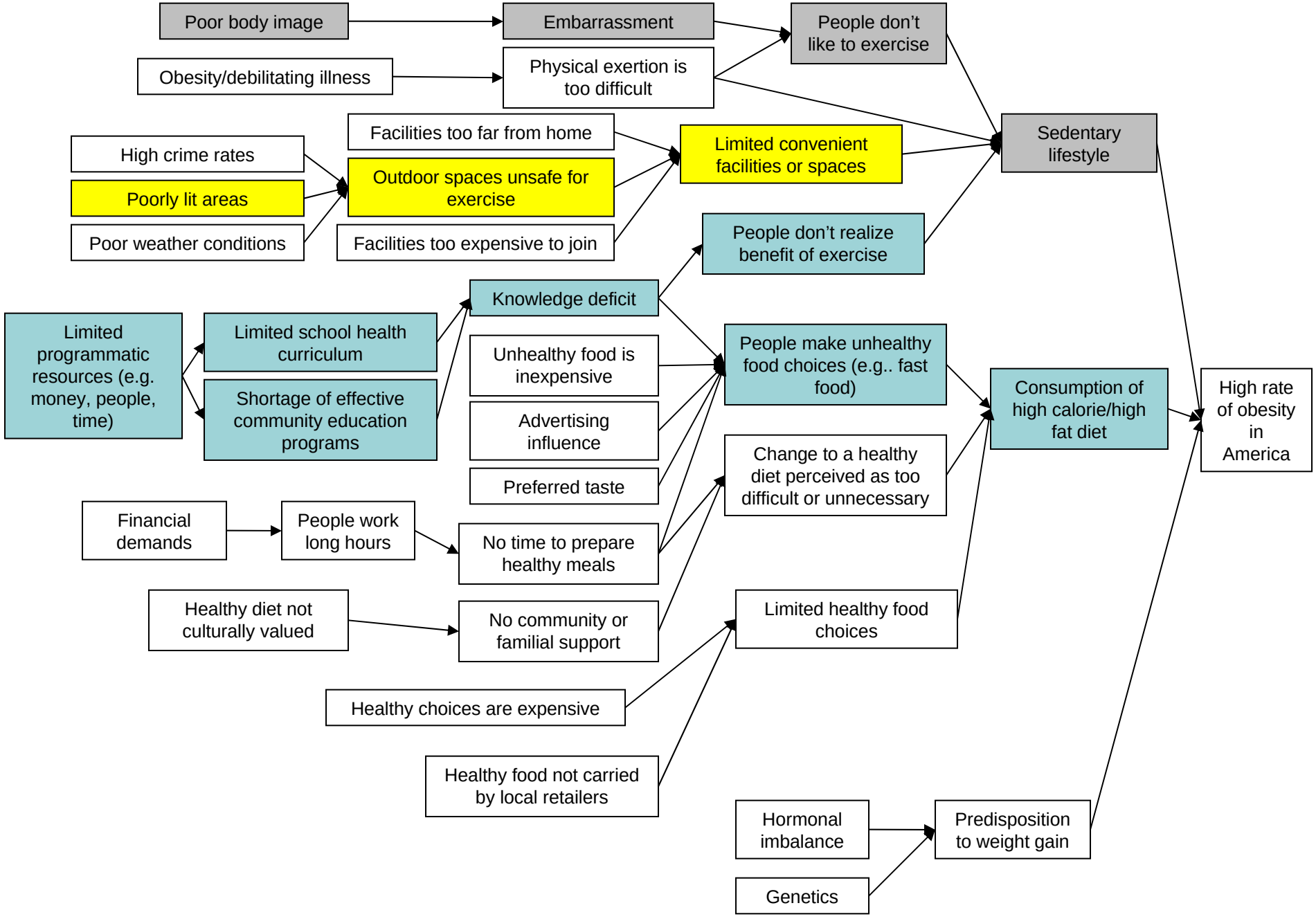
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How Is the Prioritized Map Useful?

- Realistic expectation re: outcomes
- Identify gaps and redundancies
- Assist in locating partners for coalition
- More focused strategies

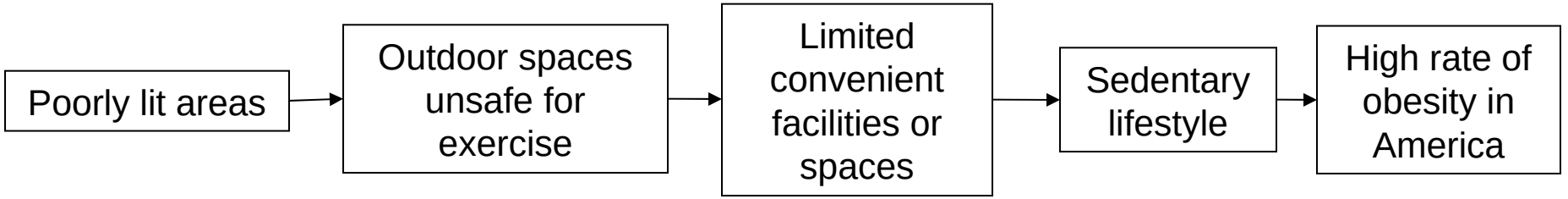
Now that we know what we are trying to change, what is the next step?

- Target Strategies: Strategies must target prioritized antecedent conditions to avoid developing activity traps .

Prioritized Antecedent Condition(s)	Description of Strategy	Rationale Linking Strategy to Antecedent Condition
Poorly Lit Areas		
Poor body Image		
Limited programmatic Resources		

Measurement: What to Measure?

- The Targeted Antecedent Conditions!
- How far along the chain should you measure?

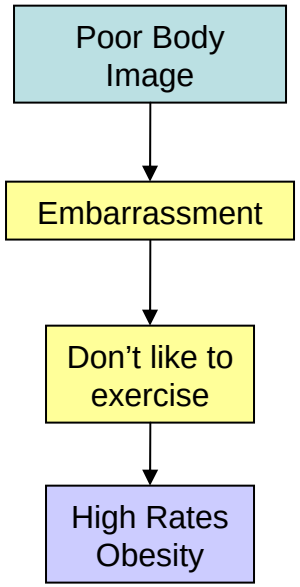


  - Things over which the program has direct and immediate control to change.

Measurement: How to Measure

- Research – traditional methods
- Service = different kind of thinking

Putting it into a Logic Model Table

Activity/Strategy	Assumptions/Program Theory	Immediate Outcomes	Intermediate Outcomes	Long-term Outcomes
Social and Behavioral Support Group		Improved Body Image	Less Embarrassment More Self Confidence	Increased Exercise Less Obesity

Conclusion

- Logic modeling is a method needed to evaluate the merit and worth of a program.
- It is designed to keep the program theory, activities, and measurement logically connected.
- If these are not connected the program has less chance of showing merit and worth.

Contact Information

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