

A full-page background image showing three runners (two women and one man) jogging on a rocky, elevated trail. The scene is set during a dramatic sunset or sunrise, with the sun low on the horizon to the right, casting a warm orange glow. The sky is filled with dark, textured clouds. The landscape features rocky outcrops and sparse trees in the distance.

Designing and Evidence-Based Intervention

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Workshop for the Rural Healthcare Education Symposium

Billings Clinic

Billings, MT

May 17, 2019



- Learn how to design an evidence-based intervention.
 - Develop a program theory.
 - Develop a targeted intervention.
 - Develop a realistic evaluation plan with realistic objectives.
- Learn how to summarize using a logic model.



What are evidence-based programs?

- Programs where **existing evidence** has been used to inform the theory of change and implementation.

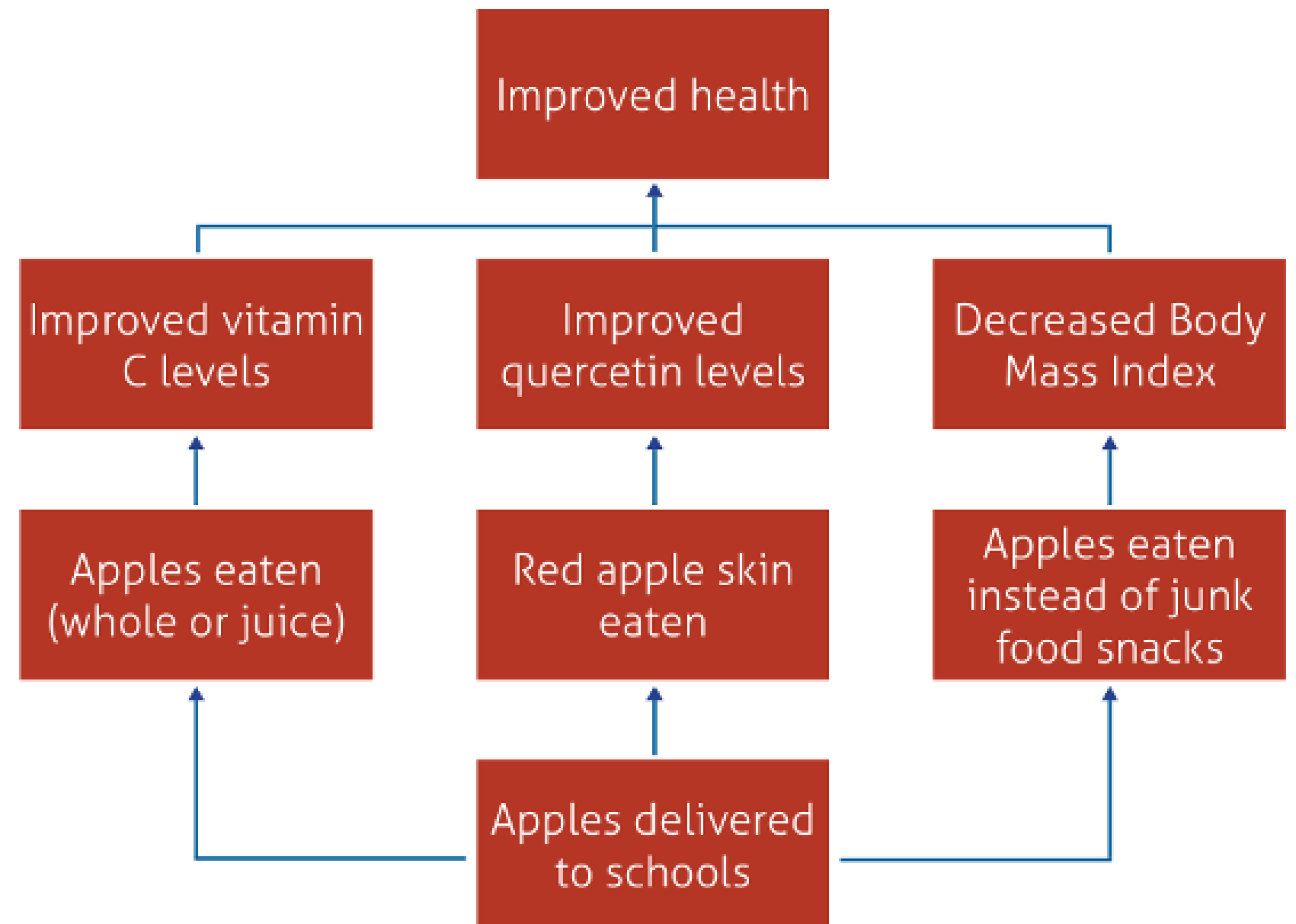
Three pillars for an evidence-based program

- Program theory
- Program activities that target the root causes of the problem; not just symptoms
- Evidence of change in outcome measures



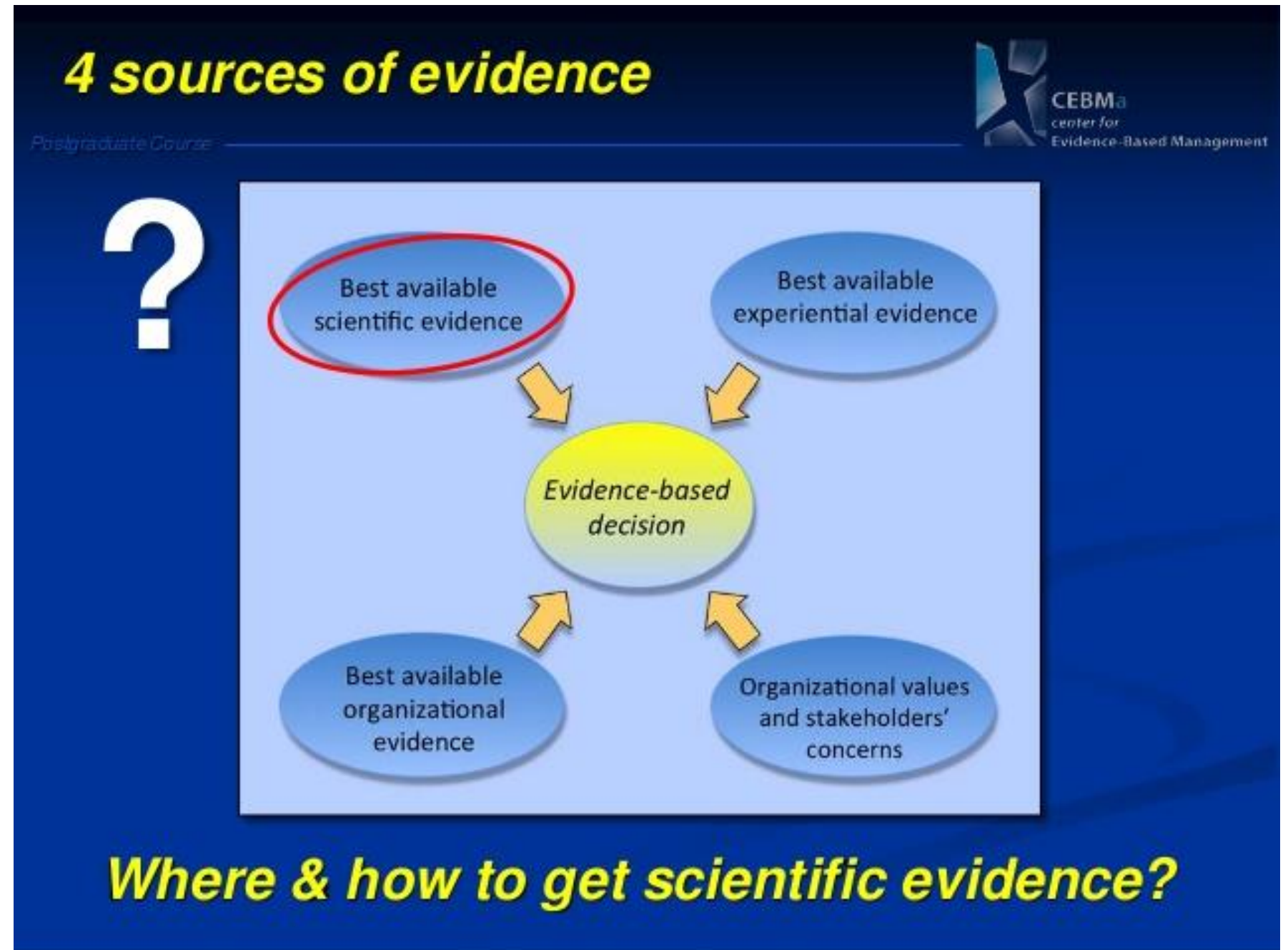
Pillar I: Program theory

- What is a program theory?
 - The underlying program rationale describing the key factors contributing to the problem.

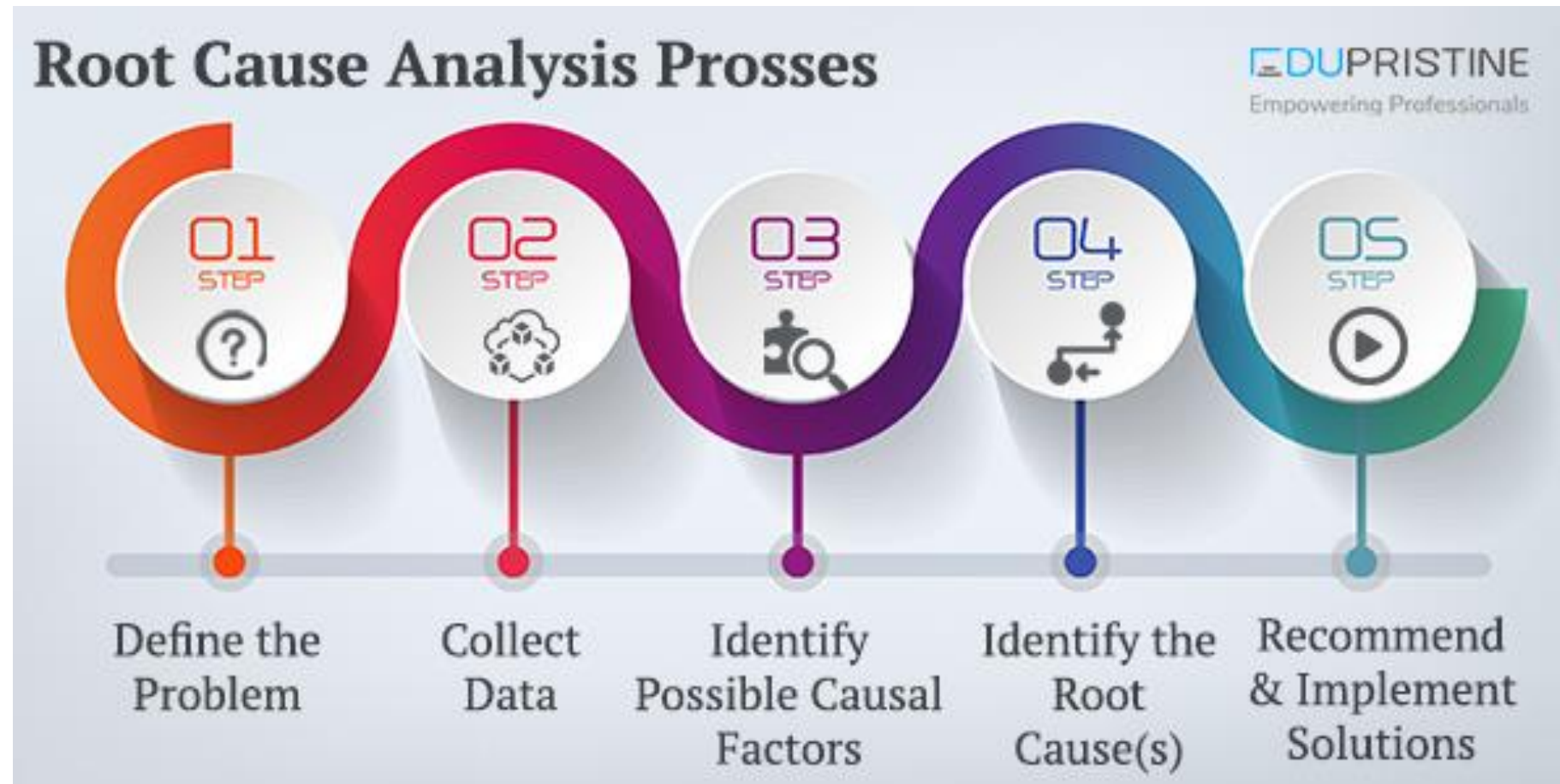


How would you go about developing the program theory?

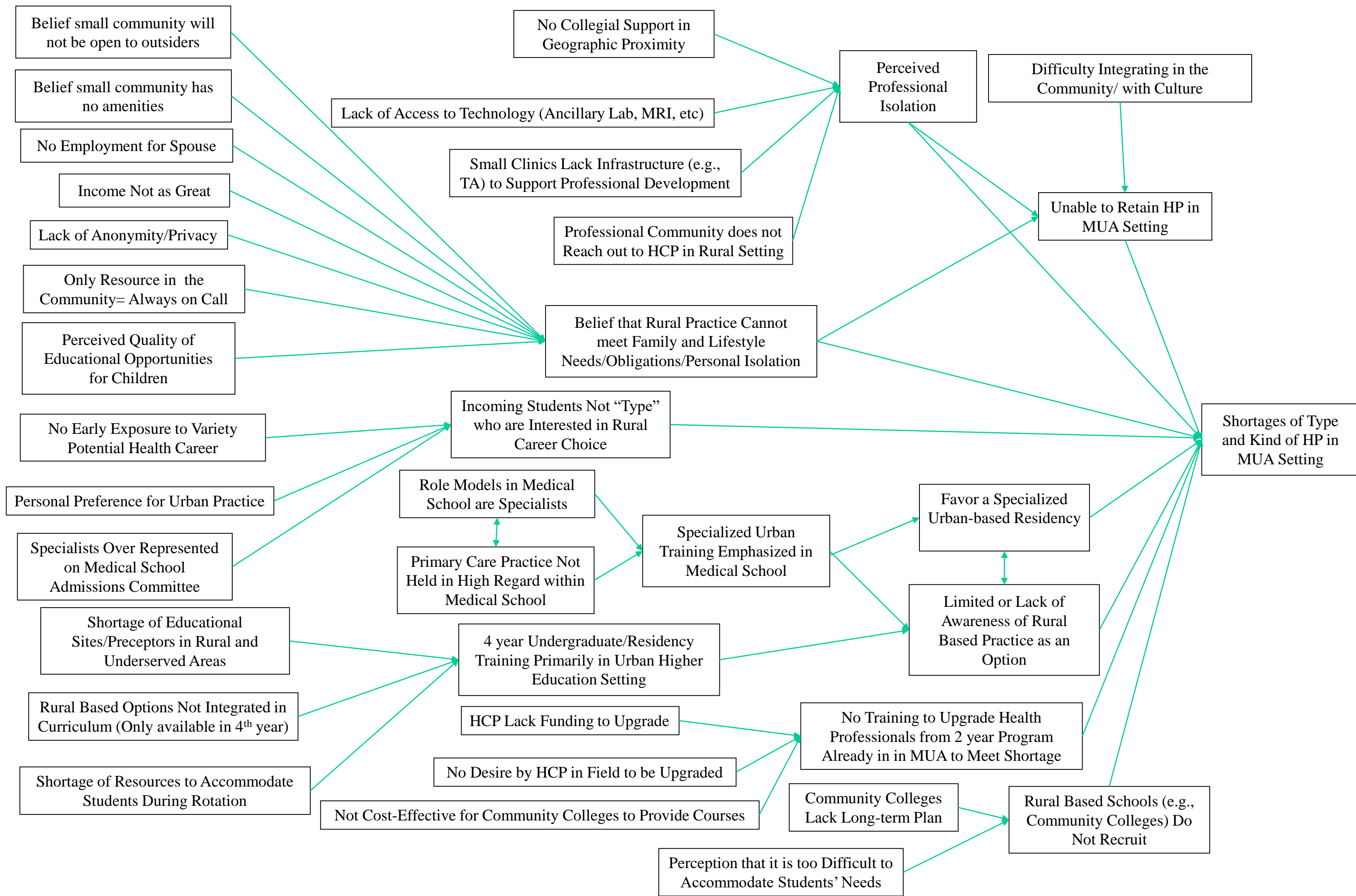
- Take a canned program
 - e.g., <https://www.samhsa.gov/ebp-resource-center>
- Do your own research literature review
 - Identify risk factors, barriers, predisposing factors, etc.
 - Good if you are a substantive expert.
- Expert Interviews, then back up with research



Generating a program theory using Root Cause Analysis: Group Exercise




- Problem: Shortage of health professionals working in rural areas.



What's the problem with the RCA map?

- Insufficient time and resources to address all the antecedent conditions and root causes.
- How would you go about narrowing down the issues to something manageable given a fixed scope and timeframe?



YOU CAN
DO ANYTHING,
BUT NOT
EVERYTHING.

-David Allen

What criteria might be useful in prioritizing which antecedent conditions and root causes?

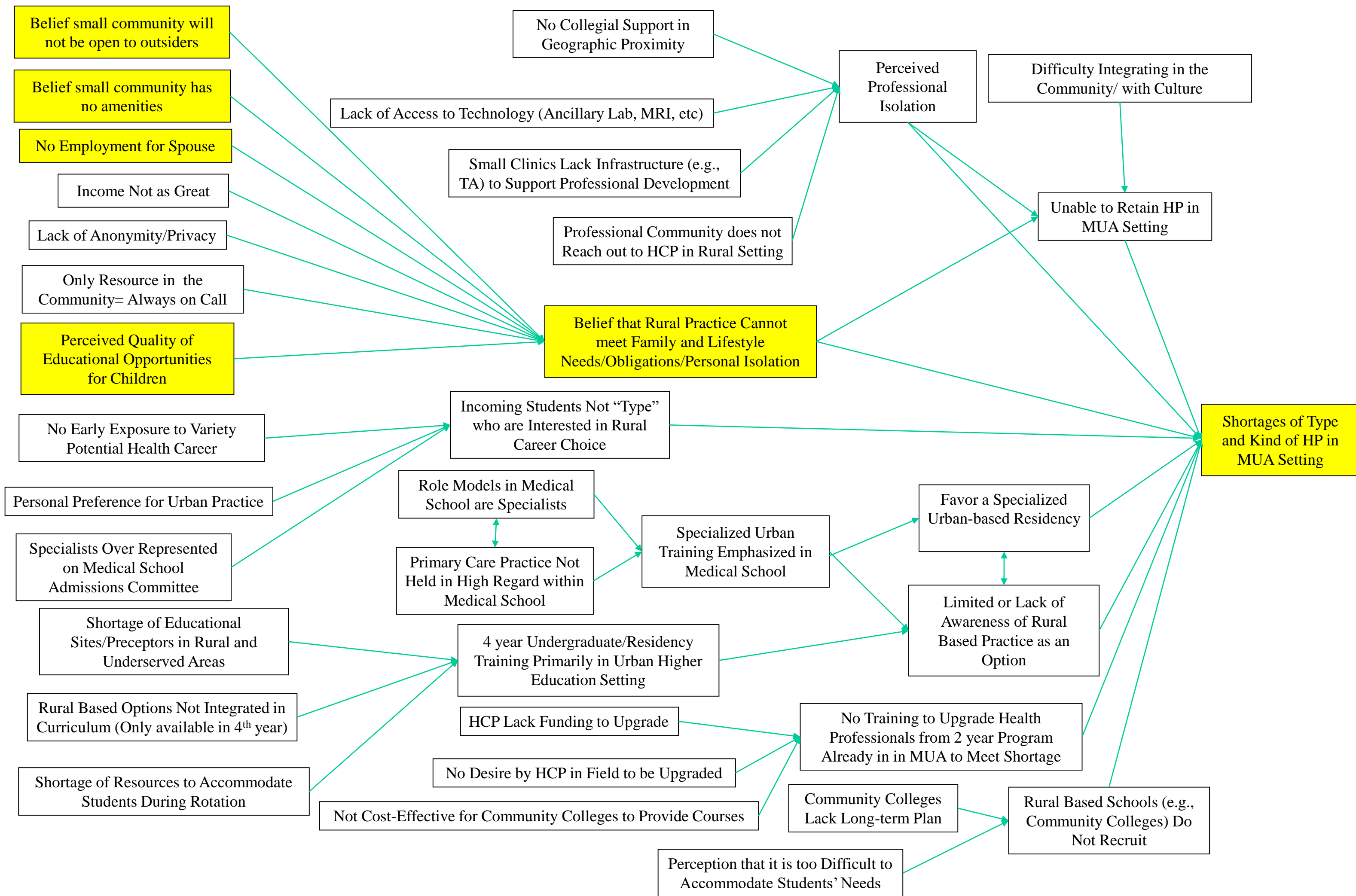
- Mission
- Length of time to demonstrate change
- Expertise of those responsible for delivering program
- Funder restrictions on intervention type:
 - E.g., must be an online educational intervention
 - E.g., must be delivered in person in Spanish
 - Our example; must be a resident rural rotation experience

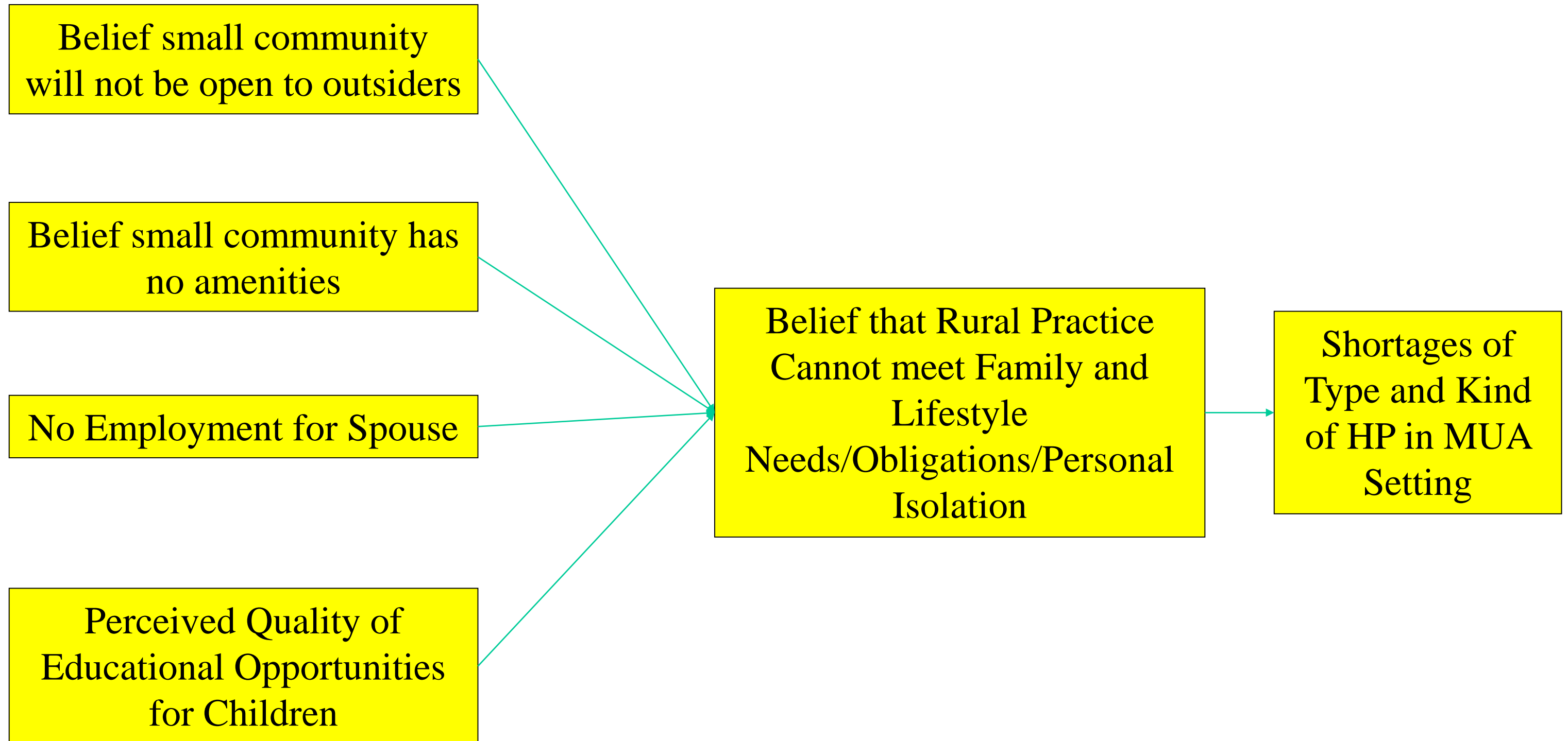


The prioritization process

- Often no more than 1-3 leaders, decision-makers
- Multiple hurdle approach
 - Whiteboard example







Backing up SME interviews with research evidence

NRI Lunchtime Seminar

Staff and students welcome



Insights from the Other Side: Targeted Literature Search Tips and Tricks

Ros Fisher,

Information specialist and NRI postgraduate student

Date: Monday 25th February

Time: 13:00-14:00

Venue: Room B125, Blake Building, Medway



Do you find yourself drowning in literature search results? Or even worse, unable to find anything? Ros Fisher, postgraduate student at NRI, worked for several years providing knowledge-based technical support for a large literature database and this seminar will share some of her expert search tips. Covering the difference between natural language search engines and Boolean logic searching across different platforms (e.g. Google Scholar, Web of Science, Scopus, Science Direct, Wiley), advanced search options, and the use of wildcards, the aim is to help you target your literature searches. Open to all, this seminar should appeal to anyone – from beginners who are still finding their feet, to those who feel as if they've fallen into a rut with their search strategies.

Pillar II: Target your activities

- Rural rotation rationale: If we allow students to experience the rural setting, then it will change their perception and increase the likelihood they will practice in a rural setting.
- Research: By and large rural rotations are ineffective.
- .
- How do we make rural rotations a more effective strategy?



Targeting a rural rotation – working session

- What could you include in the rural rotation to address concerns about:
 - school quality?
 - community amenities?
 - spousal employment opportunities?
 - community being welcoming?



NorthTown developers ask for rezoning, again

By Jonathan Hettner
Enterprise Staff Writer

Developers of a 132-acre subdivision on the north side of Livingston are again asking for a 5.6-acre parcel to be rezoned to allow for multi-family housing, two years after the change was rejected by the City Commission.

The request from developers of the NorthTown Livingston subdivision, a multi-phase, 400-home development on the north hill, will be considered by the Zoning Commission at 5:30 p.m. on May 14 at the City-County Complex, in its first meeting since being re-formed.

Bill Muhlenfeld, developer of the NorthTown subdivision, said they would like to build 14 four-plex buildings, 58 apartments overall, and rent out the two-bedroom apartments to help provide more choices in the rental market.

Muhlenfeld, who lives in Bozeman but is on the board of the Livingston Chamber of Commerce, estimated rent would probably run \$950 to \$1,000, suitable for a working couple or other working professionals.

In April 2017, the City Commission rejected a similar request by the developers of the NorthTown subdivision, after opposition from neighboring land owners because of concerns about the Fifth Street railroad crossing and decreased property values because of living next to an apartment building.

A rezoning request must be approved with a super majority, and the City Commission voted 3-2 to approve the proposal. Commissioners Sarah Sandberg and Quentin Schwarz voted against the rezoning. Sandberg is no longer on the commission.

Muhlenfeld said he has an interest in maintaining the property, as they own 127 acres across the street they are attempting to develop.

Currently, the first phase of the NorthTown development has sold 13 of the 16 lots and two homes are under construction. The second and third phases have 37 home lots.

Muhlenfeld previously estimated that full buildout of the 400 homes would take 10 years.

See **NorthTown**, Page 5

Developers of the NorthTown Livingston subdivision, shown in red at right, are asking the city to rezone a 5.6-acre parcel, in yellow, to allow multi-family housing. In April 2017, the commission rejected a similar request.

School elections being held today

By Enterprise Staff

Schools across Park County are holding elections today on levies and school board members.

In Livingston, voters are being asked to vote yes or no on a building reserve levy for the Livingston Elementary District.

The proposed five-year levy would replace another five-year building reserve levy that expires this year and be used to fund a roof replacement at Winslow School, boiler repair and replacement at Sleeping Giant Middle School and East Side School, and address future facility and maintenance needs throughout the elementary district.

If passed by voters, the proposed levy would allow the district to impose up to \$320,000 annually in local property taxes, replacing the expiring \$337,000 annual levy. Under the proposed levy, property owners would see a modest decrease in property taxes — from \$19.24 annually to \$18.27 annually on a house valued at \$100,000 and from about \$38.46 to \$36.53 on a house valued at \$200,000.

Polls are open from noon to 8 p.m. at the Park High School RecPlex.

In Shields Valley, there are five candidates on the ballot for one three-year seat on the school board: J.B. Boyd, Jonathan Croston, Eric Robinson, Chantelle Rock, and Jessie Surraiz.

Voters are also asked to vote yes or no on two levies: a high school general fund levy and a high school building reserve levy.

The high school general levy would increase property taxes by \$7,308.37 to support the high school general fund, finance general maintenance and fund school programs. If approved, the measure would increase taxes by about \$2.05 on a house valued at \$100,000 and by about \$4.10 on a house valued at \$200,000.

The high school building reserve levy would increase local property taxes by \$30,000 for one year to fund phase one of a roof replacement at Shields Valley High School. If approved, the measure would increase taxes by about \$8.40 on a house valued at \$100,000 and by about \$16.80 on a house valued at \$200,000.

Polls are open from noon to 8 p.m. at the Clyde Park School.

In Gardiner, technology fund levies — which are used to purchase, rent and repair technological equipment — for the elementary school and high school are on the ballot. Each school has separate funds.

The elementary school levy would increase local property taxes by \$20,000 per year for five years to purchase, rent and repair technological equipment. If approved, the measure would increase taxes by about \$5.33 on a house valued at \$100,000 and by about \$10.66 on a house valued at \$200,000.

The high school levy would increase local property taxes by \$15,000 per year for five years for purchasing, renting and repairing technological equipment. If approved, the measure would increase taxes by about \$3 on a house valued at \$100,000 and by about \$6 on a house valued at \$200,000.

The polls are open from noon to 8 p.m. in the foyer of the Gardiner School.

In the Arrowhead District, voters will be asked to vote yes or no on a general fund levy and a technology fund levy. The polls are open from noon to 8 p.m. at Arrowhead School.

SNOW AND WATER REPORT



Mike Krager, of Michigan, fishes the Yellowstone River south of Livingston on Tuesday morning.

Upper Yellowstone River Basin snowpack and streamflows are above normal

By Jonathan Hettner
Enterprise Staff Writer

Overall snowpack is above normal in the Upper Yellowstone River Basin, outpacing the rest of the state, according to the May Water Supply Outlook report from the U.S. Department of Agriculture's Natural Resources Conservation Service.

Though much of the winter was drier than normal, the basin has 114 percent of its normal snowpack for this time of year, largely because of three months.

"Looking back at this winter, it was the months of November, February,

and April that got the basin to where it is in right now," the report read. "The rest of the fall and winter months were a disappointment, but it doesn't matter when you get it, so long as you get it."

The Yellowstone River at Livingston is at 114 percent of normal, while the Shields River Basin is at 135 percent of normal. Both totals are behind last year, when the Yellowstone had 167 percent of normal and the Shields had 190 percent of normal.

Peak melt will likely come any day now, the report said.

High elevations, which have yet to begin significant melt, will likely experience their peaks during the coming week or two," said the report, which is dated May 1. "As good as this may sound the runoff story is not over."

May and June are typically the most significant months of the year in the region with regards to precipitation, and given this winter's wild vacillations in weather patterns, there is

much uncertainty on what they will yield."

Streamflows are projected to be around normal through July 31, the report said.

"The good news is that the snowmelt component of runoff is right where it needs to be for this time of year. Another month should tell us a lot about what to expect later in the summer months," the report said.

At Livingston, the Yellowstone is running at 4,130 cubic feet per second. The median flow for May 7 is 3,940 cfs. Statewide, streamflows are expected to be about average, with east of the Continental Divide at 100 percent of normal and west of the Continental Divide being 80 percent.

The Upper Yellowstone, at 114 percent of average streamflow, is among the highest in the state, second only to the Smith-Judith-Musselshell basin, which is at 120 percent. The Lower Yellowstone is the lowest at 63 percent.

Meatsplainer: How new plant-based burgers compare to beef?



An Original Impossible Burger, left, and a Call Burger, from Umami Burger, are shown in this photo in New York, Friday.

NEW YORK (AP) — If you want to skip meat, a new era of optimism is here.

Beyond Meat and Impossible Foods are among the companies racing to tap into the massive U.S. market of meat eaters by more closely mimicking the taste of beef than vegetarian patties of the past. Others are working to grow meat in labs.

So are the plant-based patties better for you or for the planet? Here's what you might want to know before taking a bite:

ARE THEY HEALTHIER? As with many questions about diet, it depends. For better or worse, patties from Beyond Meat and Impossible Foods can be nutritionally similar to beef.

Beyond Meat's 4-ounce patty is listed at 270 calories, while Impossible Foods' is listed at 240 calories. Ground beef's nutritional profile can range, but a similarly sized patty with 86% lean meat has around 260 calories.

Protein content is about the same, while other nutrients vary.

Some may like that the plant-based patties have fiber, but dieters are not just better, but healthy," said Varti Freudenreich, an obesity expert at the University of Ottawa.

People also may not realize the saturated fat content can be similar to beef burgers, he said.

WHAT'S IN THEM? Beyond Meat's ingredients

See **Burgers**, Page 5

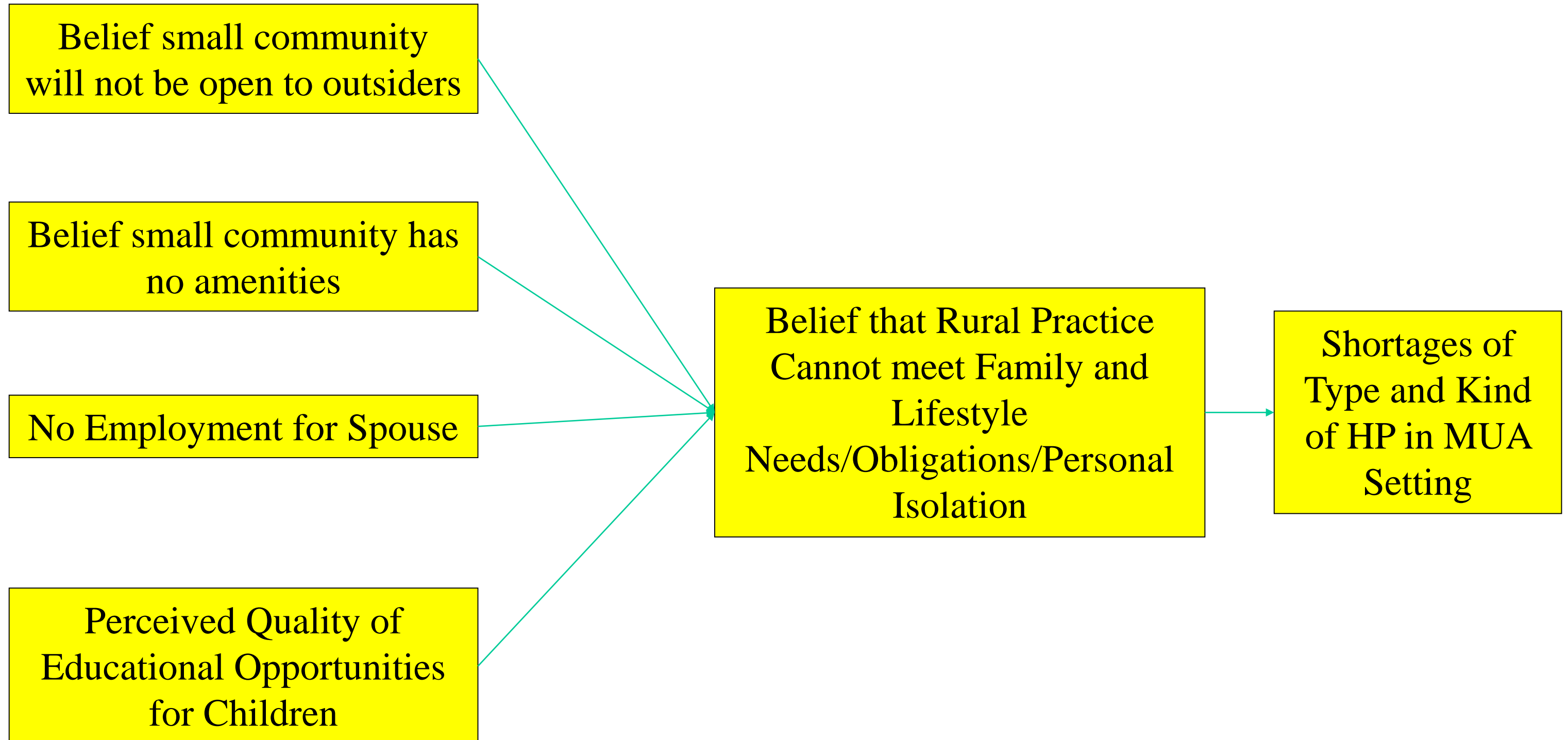
Supporting documentation



- Why is supporting documentation important?
 - Standardized training,
 - Share with others who want to replicate your program
 - Sets standard for process evaluation (evaluating implementation)

Pillar III: Evaluating change

- What should we be evaluating?



How would we measure change in targeted root causes ?

- Survey
- Questionnaire
- Think about indicators:
 - An easily observable sign that change happened.



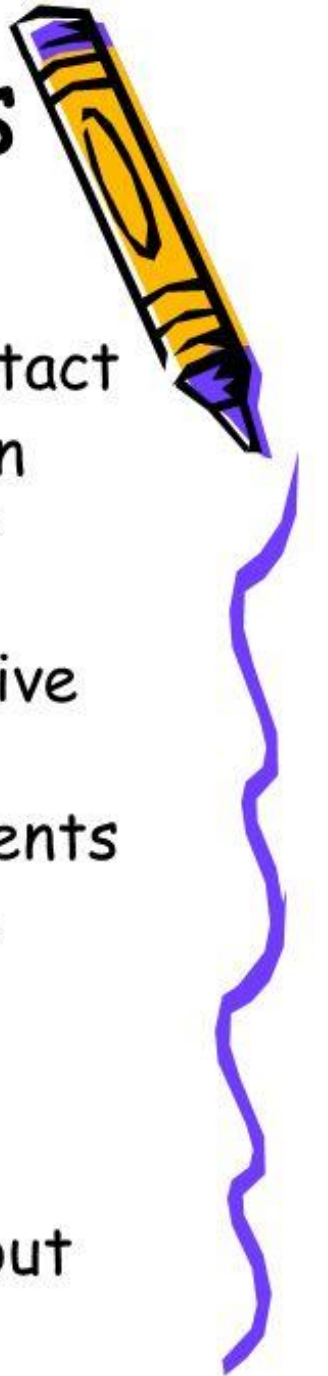
Physical Abuse Indicators

physical

- Unexplained bruises or welts
- Unexplained burns
- Unexplained broken bones
- Unexplained lacerations or abrasions
- Domestic violence

behavioral

- Wary of adult contact
- Apprehensive when other children cry
- Behavioral extremes: aggressive or withdrawn
- Frightened of parents
- Afraid to go home
- Reports injury by parents
- Easily startled
- Shows anxiety about normal activities

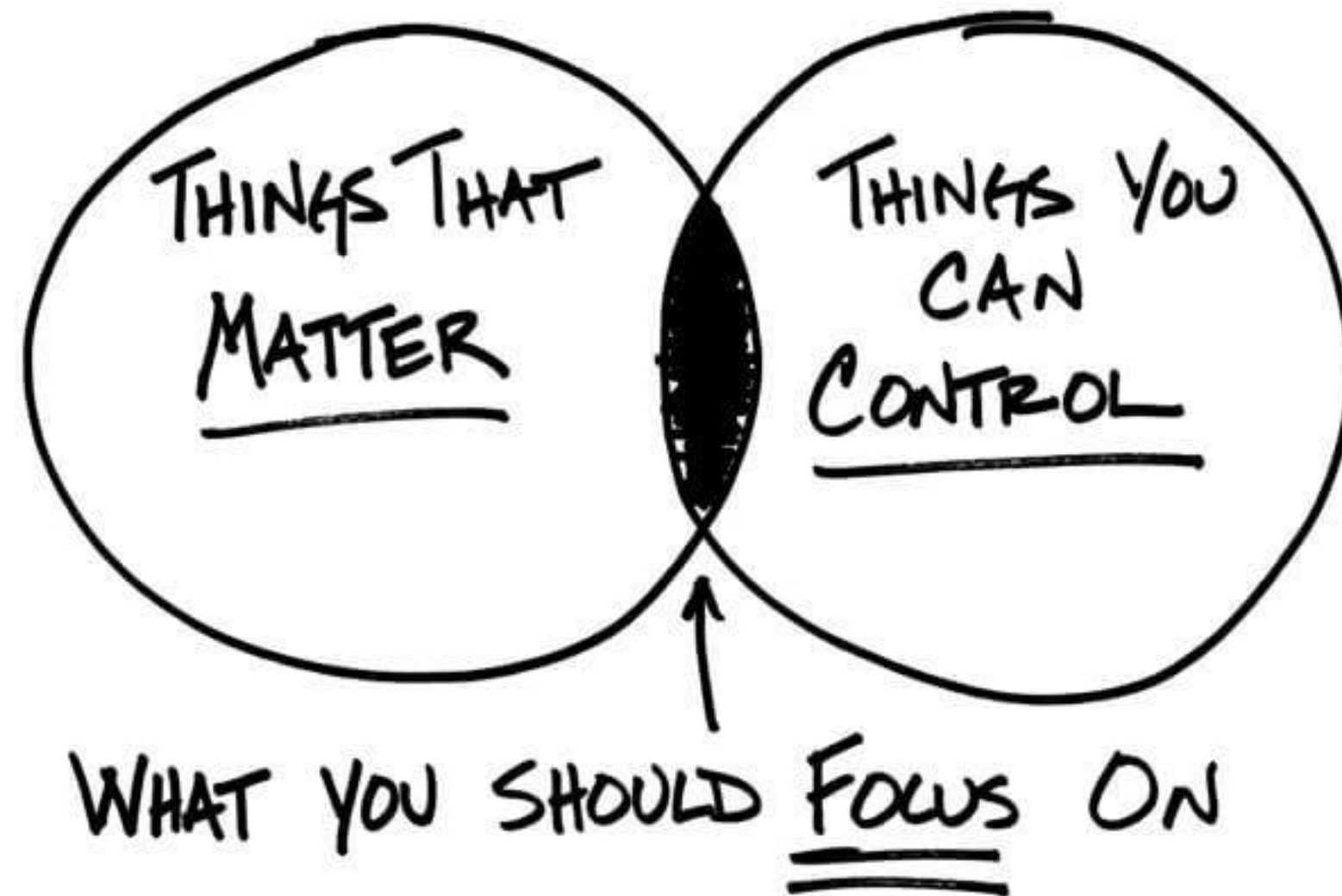


Indicators Exercise

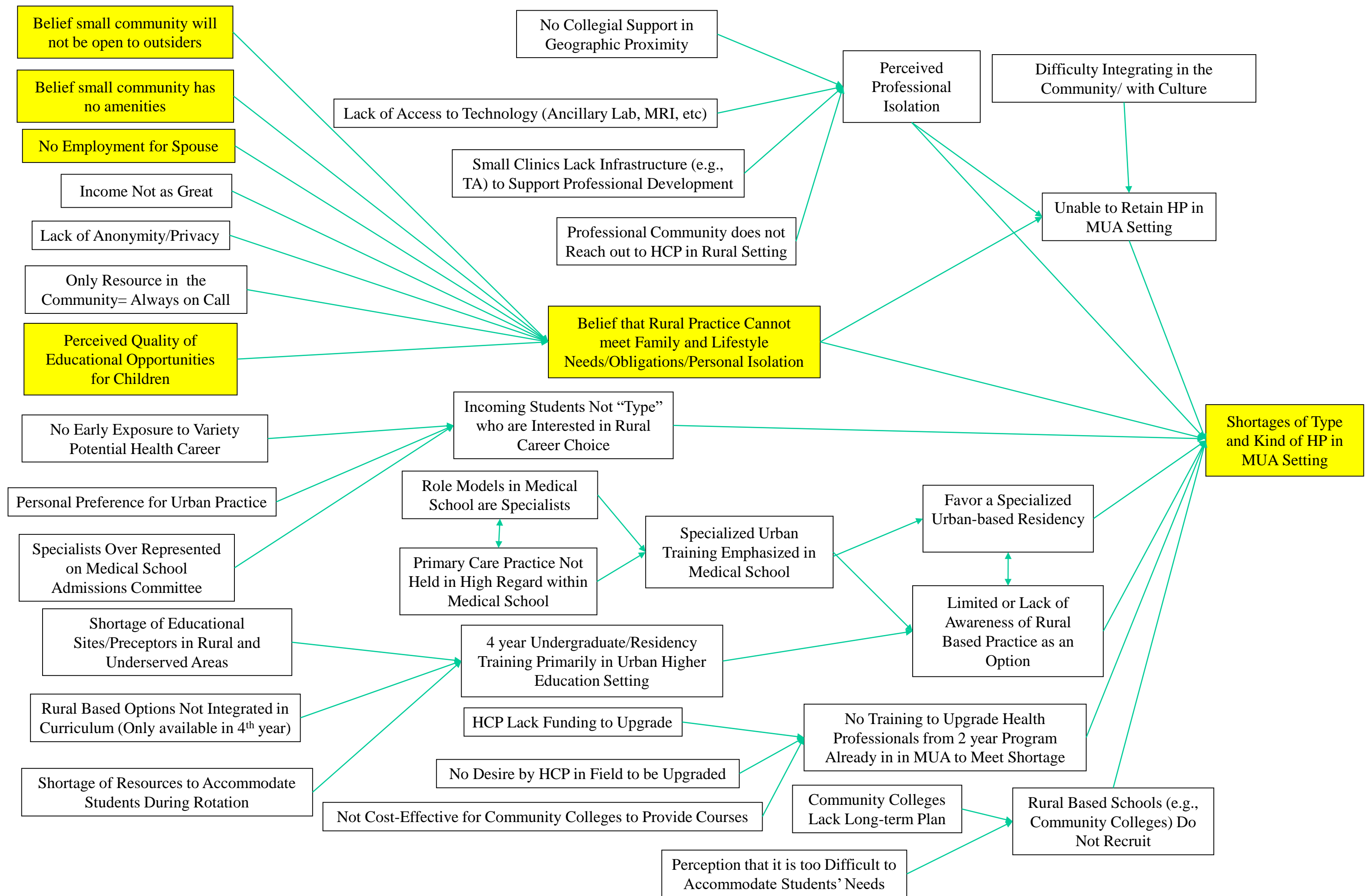
- What might indicators of whether perceptions have changed about:
 - small community being welcoming?
 - rural community cannot meet family needs?



What level of change is realistic?



- Commit to showing change in those root causes and/or antecedent conditions you have direct and immediate control to change.
- Still need to show relationship of what you are doing to the problem.



You now have what you need to write your objectives



By the end of a 4 week rural rotation students who have been introduced to the community (e.g., by newspaper) will be 75% more likely to stay at in the community during their free time.

Summarizing your Evidence-Based Program: The Logic Model

Program Theory	Intervention	Outcomes		
		Immediate	Intermediate	Long Term

Program Theory	Intervention	Outcomes		
<p>If rotation student believes that her/his spouse could also find work in the small community, then she/he will believe rural practice can meet lifestyle needs.</p> <p>If a rotation student believes in the quality of rural schools, then she/he will believe rural practice can meet their lifestyle needs.</p> <p>If the student believes a rural community can meet lifestyle needs, then more likely to practice in a rural area.</p>	<p>Rural rotation supplemented by chamber of commerce meeting.</p> <p>Rural rotation supplemented by school tour hosted by superintendent.</p>	Immediate	Intermediate	Long Term
		<p>Spouse joins rotation student for weekend visit.</p> <p>Student brings children to visit schools.</p>	<p>Student requests a second rotation experience.</p> <p>Students seeks accommodation.</p> <p>Spouse makes job inquiries.</p> <p>Family makes inquiries about school registration.</p> <p>Family seeks help of real estate agent.</p>	<p>Student has contract with rural medical facility.</p>