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HIV / AIDS POLICY
RESEARCH CENTERS

Rapid Response Policy Research Methods

Ian Holloway, PhD, MSW, MPH
Assistant Professor
Department of Social Welfare
UCLA Luskin School of Public Affairs

Overview

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- What is Rapid Response Research?
- Quantitative vs. qualitative research
- Formulating research questions
- Study design
- Sampling and data collection
- Measurement
- Variables and statistics
- Internal and external validity
- Policy Implications & Ethics

Rapid Response Research

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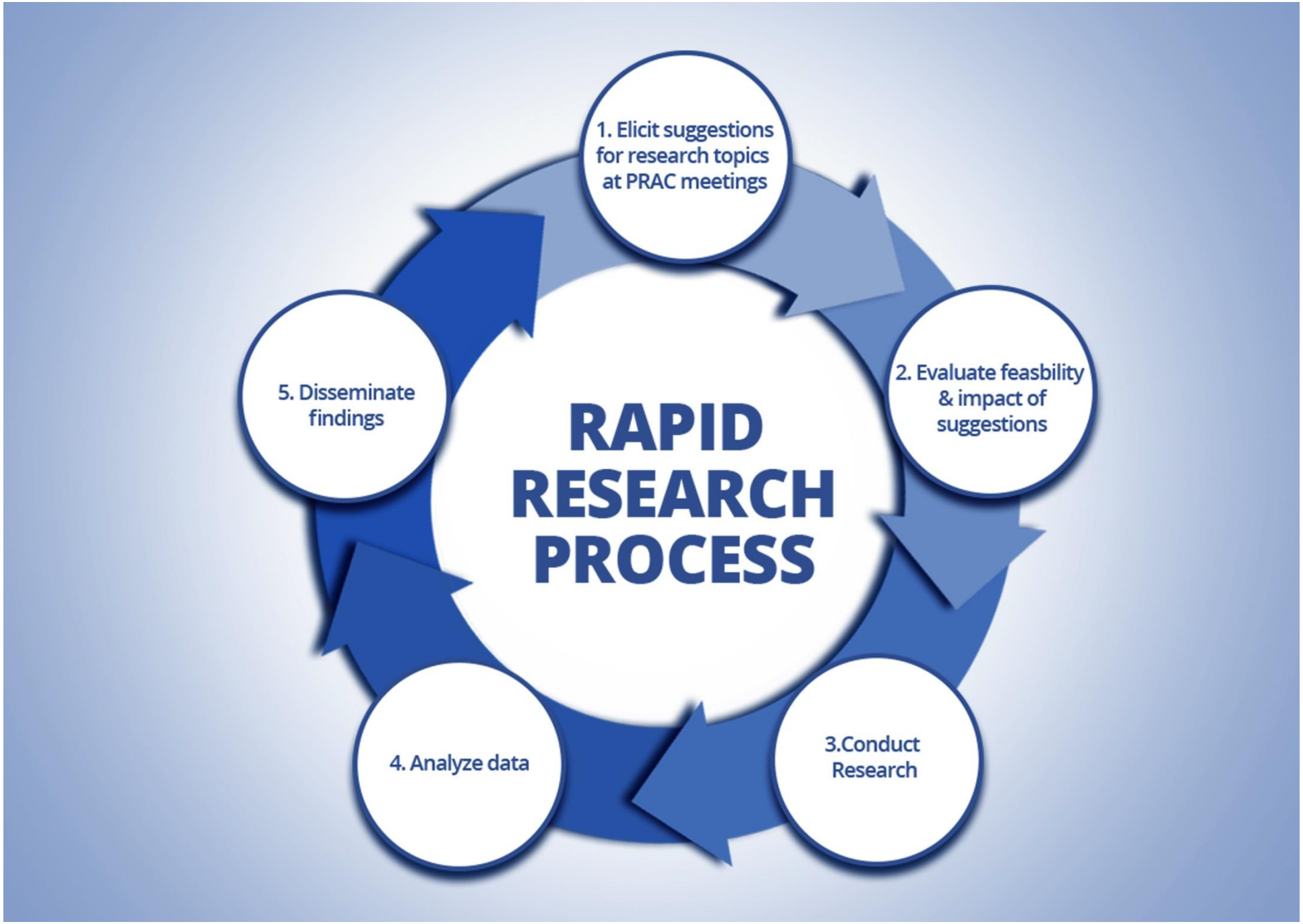
The Centers will bring the most relevant and timely evidence to bear on HIV/AIDS policy in order to develop and maintain efficient, accessible, state-of-the-art programs and services for the diverse populations of Californians living with or at risk for HIV/AIDS.


1. Elicit suggestions for research topics at PRAC meetings
2. Evaluate feasbility & impact of suggestions
3.Conduct Research
4. Analyze data
5. Disseminate findings
RAPID RESEARCH PROCESS

Rapid Response Research

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- Diverse questions = diverse methods
- Social science's traditional methods and research designs
  - quantitative in nature
  - emphasis on reliable and valid measurement
  - controlled investigation with experiments, trials, and surveys.
- No 'royal road' - a way of attaining or reaching something without trouble.

Quantitative vs. Qualitative

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- Quantitative Research
  - Empirical data
  - Explanatory research questions
  - Deductive reasoning
  - Hypothesis testing
  - Focus on establishing association or causation

Quantitative vs. Qualitative

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- Qualitative Research
  - Exploratory research questions
  - Inductive reasoning
  - Focus on previously unstudied processes and unanticipated phenomena
  - Orientation to social context
  - Focus on human subjectivity
  - Focus on events leading up to an event
  - Sensitivity to subjective role of the researcher

Research Questions

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- A good research question:
  - Is narrow and specific
  - Has more than one possible answer
  - Is posed in a way that can be answered by observable evidence
  - Addresses the decision-making needs of agencies or practical problems that impact the lives of PLWH or those at risk for HIV
  - Has clear significance for guiding policy or practice with PLWH or those at risk for HIV

Types of Study Design

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- Experimental
  - Pretest – posttest – control (classic experiment)
  - Posttest only – control
  - Solomon four group design
- Pre-experimental
  - One shot case study
  - Group pretest – posttest
  - Static group comparison
- Quasi-experimental
  - Non-equivalent comparison group
  - Time series
  - Post-test only

Types of Qualitative Studies

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- Participant observation: a qualitative method for gathering data in which natural social processes are studied as they happen in the field rather than in the laboratory and left relatively undisturbed

- Intensive interviewing relies on open-ended questions to develop a comprehensive picture of the interviewee's background, attitudes, and actions

- Focus groups: groups of unrelated individuals that are formed by a researcher and then led in a group discussion of a topic for one to two hours

Sampling

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- Probablility Sampling:
  - Simple Random Sample
  - Systematic Random Sampling
  - Stratified Random Sampling
  - Cluster Sampling
- Non-Probability Sampling:
  - Convenience Sampling
  - Quota Sampling
  - Purposive Sampling
  - Snowball Sampling

Data Collection

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- Self-reports, surveys, questionnaires
- Existing scales
- Interviews
- Observation
- Biophysical measures
- Available records

Types of Variables

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- Independent variable
- Dependent variable
- Control variable
- Demographic variable

Measurement

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- Reliability: A reliable measure is one that produces consistent scores (or values) when the phenomenon being measured doesn't change.

- Validity: A valid measure is one that accurately measures the concepts it is intended to measure.

Levels of Measurement

- Nominal – no order, just categories
  - Example: gender, race/ethnicity
- Ordinal – ranked, but not equal
  - Example: Likert-type scales (agree/disagree)
- Interval – equal levels between levels
  - Example: IQ
- Ratio – Interval + zero point
  - Example: Number of arrests

Mean, Median, Mode

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Measure	Data Requirements	Comments	Usefulness
Mode	Can be used with any level of measure	Highly unstable Cannot be used in mathematical operations	Describing the typical value of a categorical variable Describing the prevailing view or characteristic of a sample
Median	Ordinal, interval, or ratio level data	Does not consider the quantitative values of individual scores Insensitive to extreme values	Describing the middle response in a data set Describing the average value in a skewed distribution
Mean	Interval or ratio data	Most stable measure of control tendency Considers every score in a data set Sensitive to extreme values; pulled toward the tail of a skewed distribution	Describing the total or combined "average" performance of a group

Source: Norwood, S. L. (2000). *Research Strategies for Advanced Practice Nurses.* Upper Saddle River, New Jersey: Prentice Hall. P. 310, Table 14-1.

Hypothesis Testing

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- Always set-up a null and alternative hypothesis.
- Null hypothesis states “no difference” between groups.
- P-value < 0.05 indicates REJECTING the null hypothesis.
- P-value > 0.05 indicates FAILING TO REJECT the null hypothesis
- Examples:
  - H0: There will be no difference in depression score in the intervention group compared to the control group.
  - HA: There will be a difference in depression score in the intervention group compared to the control group (non-directional).
  - HA: There will be a lower depression score in the intervention group compared to the control group (directional).

Basic Statistics

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- Descriptive statistics
  - Frequency Distribution
    - Histogram
    - Frequency polygon/line graph
- Inferential statistics
  - Chi-square
  - T-test
  - ANOVA
  - Correlation
  - Regression

Two Variable Statistical Test

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Pick the test based on the type of variables used:

Test Name	Independent Variable	Dependent Variable
Chi-Sq	Categorical	Categorical
Difference in Means t-test	Categorical (2 categories)	Continuous
Correlation (r)	Continuous	Continuous
ANOVA	Categorical (3 or more categories)	Continuous

Reading Tables

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Table (adapted). Differences Between Experimental and Control Group in Injection Behaviors at 18-Month Follow-Up for HIV Negative Injection Drug Users in the SAFE Study, Baltimore, 1991-1993

	Experimental (n=39) % or Mean (SD)	Control (n=50) % or Mean (SD)	t-value or χ^2	p-value
Risk behaviors				
Instances of injecting heroin or cocaine	9.31 (4.74)	13.34 (11.02)	2.13	<.05
Instances of needle sharing	3.67 (1.91)	4.68 (2.45)	2.13	<.05
Attendance at shooting galleries	38.5	28.8	0.93	.34
Frequency of sharing cookers	64.1	80.8	3.19	.07

Example Interpretation: The p-value for instances of needle sharing is <.05, therefore, we reject the null hypothesis and conclude that we can say with 95% confidence that there is a statistically significant difference in instances of needle sharing in the intervention group compared to the control group.

Statistical Significance

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- Statistical significance does not indicate practical significance
- Need to evaluate results on their clinical implications
- Look closely at measures to determine if point differences imply meaningful differences for population of study

Internal Validity

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- The degree to which your study can determine a causal relationship between variables.
- Important for evidence-based practice since you are deciding on using interventions based on their effectiveness. You need to know that the intervention was cause of change.

Threats to Internal Validity

- History
- Maturation
- Testing
- Instrumentation
- Regression to the Mean
- Mortality
- Selection
- Interactions between Selection and others

External Validity

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- The extent to which we can generalize the findings of a study to a population beyond the study conditions
- Internal validity is necessary but not sufficient for external validity

Practical Considerations

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- Be critical readers of the literature
- Do you agree with author's conclusions?
- Statistics should support findings
- Consider practical significance

Ethical Conduct of Research

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- Voluntary Participation
- No Harm to Participants
- Anonymity and Confidentiality
- No Deception
- Transparent Analysis and Reporting

Action Research

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- Lewin (1951): emphasized scientific and societal value of translating psychological research into social/community problem-solving strategies

- Community/Eco Psychology took it from there…
  - Adoption of community-partnering strategies
  - Often over extended periods
  - Equitable fashion
  - Multiple methods used; multiple frameworks

Related to concept of participatory research

Program Evaluation

- Application of research, *but its own field*
- Assessment of initiatives, programs, projects
- Test efficacy (Outcome Evaluation) or implementation (Process Evaluation)
- Intended to be applied to the improvement of specific health programs
- Multiple methods used; multiple frameworks

Create Questions

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- Create questions that combine the topic and the related concepts
- Examples
  - What factors predict homelessness among PLWH?
  - What role does the increased funding for housing first interventions play in mitigating effects of homelessness among PLWH?
  - What is the cost of providing transitional housing to PLWH who are homeless in Los Angeles County?