The Use and Influence of Health Indicators in Municipal Transportation Plans

Kelly Rodgers

PSU Transportation Seminar

April 20, 2023

Overview

Introduction	Use, Institutionalization, and Decision-Making	Social Learning and Policy Change	Overall Conclusion
• Transportation and health • Research questions • General literature • Methodology	• Literature and concepts • Findings • Conclusion	• Literature and concepts • Findings • Conclusion	• Other observations • Contributions • Limitations • Further research

Transportation and Health

The social determinants of health. Source: CDC

Research Questions

1. How are health indicators used in transportation plans?

   What factors are responsible for their use?

2. How influential are health indicators in shaping transportation decisions?

   What factors explain their influence?

Literature and Concepts

Indicators are a form of **technical information** intended to influence policymaking

In public health, indicators are a way to operationalize **evidence-based policy** (Bell & Morse, 2011; Sébastien et al., 2014)

Evidence can be used in multiple ways: **instrumentally, conceptually, and politically** (Weiss 1977, 1979, 1991)

The concepts of "**use**" and "**influence**" have been inconsistently defined in research (Landry et al., 2003; Oliver et al., 2014; Weiss & Buculavas, 1980)

The exchange of knowledge is **more complex** than most models acknowledge (Contandriopoulos et al., 2010; Weible, 2008)

Indicators

Indicator

- Indicators are constructs representing a condition
- Multiple metrics may be associated with an indicator

Performance Measure

- Performance area or objective = Indicator
- Performance measure = Metric

Indicator Type

- Outcome = Measuring a condition (increase active travel mode share)
- Output = Measuring activities (miles of bicycle lanes)

Key Concepts

Use

- "Handled" in a transportation process (Gudmundsson & Sorensen, 2013; Sébastien et al., 2014)

Influence

- Administrative decision-making (Part 1)
- Social learning (Part 2)
- Policy change (Part 2)

Institutionalization

- Integrated into agency routines
- Repeated administrative use (Part 1)

Methodology

Case study of 5 cities

Population size between 600,000 and 900,000

Diverse characteristics

- Population density
- Median household income
- Race and ethnicity
- Geographic location

Case Cities

City	Population, 2019[a]	Population density per sq mi	Population change from 2010 to 2019	Percent white, not Hispanic	Largest non-white group[b]	Median household income
Boston	692,600	7,672	+12%	44.5	25.2% B	$71,115
Denver	727,211	3,922	+21%	54.2	29.9% H	$68,592
Indianapolis	876,384	2,270	+6.8%	55.5	28.6% B	$47,873
Memphis	651,073	2,053	-0.1%	25.7	64.1% B	$41,228
Seattle	753,675	7,251	+24%	63.8	15.4% A	$92,263

[a] All data in Table 1 is from the 2019 American Community Survey's 1-Year Data Estimates, U.S. Census Bureau. [b] The largest group of non-white alone population, including race and ethnicity: A=Asian, B=Black, H=Hispanic

Data and Methods

Transportation plans (n=10)

City and transportation budgets

Experience with data-driven management

Informant interviews (n=34)

- City planning staff (3)
- Transportation/public works staff (9)
- Other city department (2)
- Departmental director (1)
- Public health professional (2)
- Non-profit organization (10)
- Consultant (4)
- Metropolitan planning organization (5)

Case City Plans

City	Transportation plan	Date adopted
Boston	Go Boston 2030 vision and action plan (Go Boston)	2017
	Vision Zero Boston action plan (Vision Zero Boston)	2016
Denver	Blueprint Denver: A blueprint for an inclusive city (Blueprint Denver)	2019
	Denver moves: Pedestrians & trails (Denver moves pedestrians)	2019
Indianapolis	Indy moves transportation integration plan (Indy moves)	2016
	Indianapolis pedestrian plan: Walkways (Walkways)	2016
Memphis	Memphis 3.0 comprehensive plan (Memphis 3.0)	2019
Seattle	City of Seattle pedestrian master plan (Seattle PMP)	2017
	Move Seattle: Mayor Edward B. Murray's 10-year strategic vision for transportation (Move Seattle)	2015
	City of Seattle bicycle master plan (Seattle BMP)	2014

City and Transportation Budgets

City	FY 2019 transportation budget	FY 2019 city budget	Per capita 2019 city budget
Boston	$152.9 million	$3.29 billion	$4,750
Denver	$146.01 million	$2.4 billion	$3,300
Indianapolis	$117.04 million	$1.17 billion	$1,355
Memphis	$15.85 million	$685 million	$1,052
Seattle	$619 million	$5.9 billion	$7,828

Indicators: Use, institutionalization, and administrative decision-making

Literature and Concepts

Indicator Use

- Handled (e.g., discussed, measured, reported) in a transportation process (Gudmundsson & Sorensen, 2013; Sébastien et al., 2014)
- Three use cases:
  - Existing conditions, prioritization, and systems monitoring

Administrative Decision-Making

- Correcting a “mistake”
- Single-loop learning or “know-how” (Argyris & Schön, 1996; Fischer et al., 2009)

Institutionalization

- Integration into agency routines
- Reflecting on organizational purposes and goals
- Double-loop learning or “know-why” (Argyris & Schön, 1996; Fischer et al., 2009)

Literature and Concepts

Indicator Usability (STS, KU, indicator literatures)

- Salient, credible, and legitimate (Cash et al., 2002, 2003)
- Truth tests and utility tests (Weiss & Buculavas, 1980)

Organizational Factors (ACF, KU, institutionalism, organizational science, indicator literatures)

- Legal structure and laws (Béland & Katapally, 2018; Sabatier, 1987)
- Organizational culture and leadership (Argyris & Schön, 1996; Weiss & Buculavas, 1980)
- Administrative routines (Bauler, 2012; Innes & Booher, 2000)
- Espoused theory of use vs. theory-in-action (Argyris & Schön, 1996)
- Financial and technical resources (Sabatier, 1987)
- Communication and collaboration (Argyris & Schön, 1996; Innes & Booher, 2000)

Indicator Usability Factors

Factor	Characteristic	Description
Salient	Measurability	Is the indicator measurable? Is it relatively easy and inexpensive to measure (Joumard et al., 2011)?
	Availability	Are there data readily available (Joumard et al., 2011)?
	Spatial scale	Is the indicator measured at a spatial scale that is useful to decision-makers?
	Frequency	Is the frequency with which data is collected/updated useful for decision-makers?
	Policy-relevant/ actionable	Does the indicator reflect something that policymakers have control over (Joumard et al., 2011; Weiss & Bucuvalas, 1980)?
	Targets	Do practitioners set indicator targets? What is the basis for targets?
	Policy-sensitive	Does the indicator reflect changes in policy or practice (Joumard et al., 2011)?
	Communication/ complexity	Is the indicator easy or challenging to communicate to stakeholders (a.k.a. transparent and interpretable, Joumard et al., 2011)?
	Forward-looking	Can the indicator be forecasted (Reiff & Gregor, 2005)?
Credible	Reliability	Can the indicator be consistently measured (Joumard et al. 2011)?
	Construct/content validity	Does the indicator measure the concept it is intended to measure (Joumard et al. 2011)?
	Internal validity	Does the indicator accurately measure the phenomenon? Are the causal links scientifically plausible (Contandriopoulos et al., 2010)?
	Conformity to user expectations	Does the indicator conform to user expectations? Is it compatible with users' ideas and sense of the situation (Weiss & Bucuvalas, 1980)?
Legitimate	Legitimate	Was the indicator developed in an unbiased manner and through a fair process (Cash et al., 2002)?

Organizational Factors

Factor	Description
Formal institutions	How do institutional structures and laws affect the processes of indicator development, use, and influence?
Organizational culture and leadership	How are the values of the agency expressed in mission statements and planning documents? Does agency leadership support indicator use by providing resources?
Administrative governance	How do agency routines and decision-making processes incorporate indicators?
Financial and technical resources	How do agency resources affect the ability to develop, use, and monitor indicators?
Communication and collaboration	How do city departments work together? Did the users and producers of indicators work together? What was the nature of forums for dialogue?

Overview of Plans and Findings

City of Boston

Go Boston 2030 was designed to “both justify the projects and say you did what you promised by hitting these metrics” (Informant 11)

Go Boston 2030 Vision and Action Plan

- Mayor at the time, Mayor Walsh, initiated
- Long-range transportation plan adopted in 2017
- Extensive engagement process
- Indicators co-developed by consultants and staff
- First use of indicators, seen as innovative by departmental leadership

Vision Zero Boston Action Plan

- Mayor at the time, Mayor Walsh, initiated
- Adopted in 2016 as an “early action project” of Go Boston
- Not extensive plan engagement (engagement occurs at project level)
- One goal and indicator: “To eliminate fatal and serious traffic crashes in the city by 2030”

Boston Findings

Existing Conditions

- Drew attention to affordable travel to jobs and racial disparities in travel time
- No major indicator usability challenges
- Sufficient technical and financial resources for the plans
- “Forced” collaboration through indicator development

Prioritization

- Project prioritization within Go Boston as intended
- Capital improvement programming evaluation criteria after Go Boston adoption
- Spatial scale (health data)
- Agency unfamiliarity with indicators

Boston Findings

Systems Monitoring

- Crash data problematic but when improved could make changes
- Measurability a challenge for on-going monitoring by advocates
- Outcome measure attribution
- Insufficient financial and technical resources internally for Go Boston monitoring
- Vision Zero online dashboard
- Nonprofit organization progress report

Boston

Go Boston perhaps “put a real pin on . . . affordable travel and access to jobs” (Informant 16)

“We wanted to look at obesity data . . . . It's useful for . . . planning, but it's not that useful for like, you should put a sidewalk on the street” (Informant 12)

The LivableStreets progress report “absolutely made [the City], like, change decisions or timelines . . . . It did light a fire under them” (Informant 14)

We haven't had [indicators] in the past . . . that's not something that has been a topic of conversation . . . It's not been part of the culture . . . of these departments (Informant 17)

Boston Summary

Use Case		Influences	Indicator Usability	Organizational
Existing conditions		• Drew attention to employment access and racial disparities in travel time	- Setting targets	+ Financial and technical resources + Departmental leadership + "Forced" collaboration (Informant 12)
Prioritization	Within plan	• Project list within plan	- Spatial scale, health data (Salience)	+ Departmental leadership + Financial and technical resources
	CIP	• Not observed	- Recreate CIP metrics	- Financial and technical resources - Departmental routines
Systems monitoring	Internal analysis	• Improvement to crash location • Equitable project prioritization	+/- Reliability, accuracy (crash data) - Outcome attribution	+ Departmental structure + Departmental leadership + Departmental culture (safety) - Financial and technical resources - Methodology difficult to replicate
	Reporting	• Project delivery accountability • Attract funding for additional reporting	- Measurability - Meeting (aspirational) targets - Communication, complexity	

+ Facilitator, - Barrier

City and County of Denver

"If, after five years, we've seen that we've had great success with four of the six [indicators] or whatever . . . the intent was like, 'okay, what are we not getting done in these other two? . . . . Should we . . . apply . . . more resources to it?' . . . it would help us be more strategic about setting our work program going forward. I don't think it's influenced it quite yet (Informant 24)

Comprehensive Plan 2040

- Adopted in 2019, overarching plan providing a framework for other plans, such as Blueprint Denver
- Several plans at once, branded together as "Denveright"

Blueprint Denver: A Blueprint for an Inclusive City

- Adopted in 2019, land use and transportation component of the comprehensive plan
- Led by the Department of Community Planning and Development (CPD)
- First use of indicators

Denver Moves: Pedestrians & Trails

- Created by public works department; subsequently changed to the Department of Transportation and Infrastructure (DOTI)
- First use of indicators, considered a "best practice" (Informant 26)

Denver Findings

Existing Conditions

- Drew attention to health equity and inequitable project delivery
- Sufficient financial and technical resources for plans
- Departmental collaboration on data

Prioritization

- Project list in Denver Moves Pedestrians
- Spatial scale a concern
- CIP: Systems monitoring indicators used

Denver Findings

Systems Monitoring

- Time lag, secondary data
- Outcome attribution
- Evolution of metrics over time
- Integrated into routines - mismatched use case
- Data-driven mayor
- Agency culture of learning (Blueprint diagnostic)
- Sufficient financial and technical resources for monitoring

Denver Summary

Use Case		Influences	Indicator Usability	Organizational
Existing conditions		• Drew attention to infrastructure and health disparities	No concerns	+ Financial and technical resources + High collaboration, including health + Elected leadership/culture + CPD culture of learning
Prioritization	Within plan	• Project list in Denver Moves	No concerns	Not observed
	CIP	• Not observed	- Spatial scale (Salience)	- Lack of clear use case (Blueprint)
Systems monitoring	Internal analysis	• Not observed	- Time lag (Salience) - Outcome attribution - Communication, complexity	+ Financial and technical resources + Elected leadership/culture + Departmental routines + CPD culture of learning + Well documented methodology
	Reporting	• Additional equity analysis • Negotiated benefits in rezoning cases	No concerns	

+ Facilitator, - Barrier

Denver

"The administration here in Denver [is] very, very keen on getting a metric-driven city" (Informant 24)

"When . . . the budget goes through CIP (capital improvement program) . . . the departments are justifying their budget requests on how well they actually are implementing the comprehensive plan" (Informant 24)

Blueprint indicator updates to council were "a good half-hour of city council just free-associating on their fears and anxieties. It had nothing to do with, like, 'Are we getting where we're going?'" (Informant 25)

"There's a real understandable lean towards using data that's going to be available anyway, so the American Community Survey, Census-type data . . . that not only has the credibility, you know, it's also already being collected and can be compared across cities . . . but it's very slow, it's very delayed, it's very infrequent . . . . If there's a course correction needed, will you know it before it's too late?" (Informant 25)

City of Indianapolis and Marion County

"I don't think it's because the data isn't usable or available. It's because of the systems. We do not have the systems in place to use the data in the way they're intended to be used" (Informant 35)

City of Indianapolis and Marion County Pedestrian Plan: Walkways

- Outgrowth of a larger comprehensive planning effort, Plan 2020
- Nonprofit organization secured a *Plan 4 Health* grant to produce the plan
- First pedestrian plan ever, adopted in 2016
- First use of indicators

Indy Moves Transportation Integration Plan

- Outgrowth of a larger comprehensive planning effort, Plan 2020
- Adopted in 2018 by the Metropolitan Development Commission, not city council
- First use of indicators

Indianapolis Findings

Existing Conditions

- Drew attention to safety, affordability, equity
- Sufficient financial and technical resources for plans
- High collaboration between departments (except police)

Prioritization

- Equity overlay for residential resurfacing
- Change in submitted projects to Metropolitan Planning Organization
- No transportation department – new transportation position

Indianapolis Findings

Systems Monitoring

- Reliability, accuracy of crash data
  - "It was so, so bad from police departments" (Informant 36)
- Safety improvement with improved crash data
- Value of outcome measures
- Lack of departmental and elected leadership
- Highly under-resourced (2nd lowest)

Indianapolis

Use Case		Influences	Indicator Usability	Organizational
Existing conditions		• Drew attention to affordability, equity, safety • Equity-centered prioritization framework	- Availability, especially ped/bike data (Salience)	+ Financial and technical resources + High collaboration, including health + Staff leadership + Nonprofit leadership
Prioritization	Within plan	• Project lists • Projects submitted to MPO	No concerns	+ Financial and technical resources
	CIP	• Equity-focused residential resurfacing	No concerns	+ Departmental structure (new position) - Financial and technical resources - Departmental leadership
Systems monitoring	Internal analysis	• Safety improvement	+/- Reliability, accuracy (crash data) - Measurability - Outcome attribution - Time lag	- Financial and technical resources - Elected leadership/culture - Departmental leadership - Departmental routines - Plans adopted at Metropolitan Development Commission level
	Reporting	• Not observed	Not observed	

+ Facilitator, - Barrier

Indianapolis

"After Indy Moves, the City was in this moment where they were very willing to cut expansion projects that were planned . . . they came back to the MPO and took out, like, literally dozens of expansion projects to prioritize pedestrian and bike projects" (Informant 36)

"Nobody's asking for the data . . . it's nobody's job to collect it each quarter or each month" (Informant 35)

"You're not actually going to see change on obesity . . . over one year, three years, or maybe even five years . . . let alone attribute any change to the ped[estrian] plan . . . . It's fine, but . . . what is it really telling us and does it really matter?" (Informant 35)

"The day-to-day staff wants [data-driven planning]. I don't think they're largely empowered to do it on their own though . . . . Not everybody wants–particularly politically appointed people–not everybody wants this level of transparency" (Informant 35)

City of Memphis

Memphis 3.0 Comprehensive Plan

- Idea from the Office of Performance Management (OPM), championed by the mayor
- Planning effort led by Office of Comprehensive Planning (OCP, a new office)
- First comprehensive planning effort since 1981
- Overall strategy: “Build up, not out”
- Monitoring indicators developed after plan adoption
- Indicators co-developed by OPM and OPC
- Adopted in 2019 by Memphis and Shelby Land Use Control Board and then by Memphis City Council

Memphis Findings

Existing Conditions

- Residents brough transit to City's attention

Growth Scenarios

- Market data influenced plan direction

Memphis Findings

Prioritization

- Did not prioritize projects as part of plan

Systems Monitoring

- Indicators developed after the plan by OPM and OCP
- Lack of clear internal use case
- Data-driven mayor
- Lowest financial resources but…
- Dedicated office to performance management
- Monthly mayor's dashboard review
- OPM monthly reporting on indicators via dashboard
- OCP monthly reporting on projects

Memphis

Use Case		Influences	Indicator Usability	Organizational
Existing conditions		• Drew attention to transit and employment access (limited)	No concerns	+ Financial and technical resources + Elected leadership/culture
Growth scenarios		• Market and equity data informed plan	No concerns	
Prioritization	Within plan	• Conceptual projects from growth scenarios	Not observed	+ Financial and technical resources
	CIP	• Not observed	Not observed	
Systems monitoring	Internal analysis	• Not observed	- Salience	+ Financial and technical resources + Elected leadership/culture + Required reporting to mayor + Departmental culture, culture of learning +/- Departmental routines - Indicators developed separately from plan process - Lack of clear internal use case for OCP
	Reporting	• Process improvements (other departments)	- Availability (Salience)	

+ Facilitator, - Barrier

Memphis

The "division is having a hard time . . . tracking and measuring because . . . the outcomes and indicators . . . are not linked directly to actions" (Informant 41)

The Mayor's dashboard review meetings were not used to discipline department leaders, "instead it was more, 'We've seen this issue over and over and over again . . . . What can we do to fix it? What do you all need?'" (Informant 43)

OPC staff is willing to use the dashboard but struggled to figure out exactly how to use quarterly or annual indicators: "like, 'What's the audience for that? Where does that fit? How [does OPC] use that?'" (Informant 43)

City of Seattle

Indicators help SDOT to "point back to why we've made decisions, why certain projects have risen to the top . . . . It makes a lot of our work a lot more defendable, especially when they become controversial as bike projects like to become" (Informant 52)

Move Seattle

- Adopted in 2015, initiated from mayor's office
- A 9-year, $930-million transportation levy passed in 2015 to execute Move Seattle

Seattle Pedestrian Master Plan

- An update of the 2009 plan, adopted in 2017
- Streamlined and updated indicators from previous plan
- Less extensive engagement; reliance on advisory board

Seattle Bicycle Master Plan

- An update to the 2007 plan, adopted in 2014
- Shift in focus from vehicular cyclists to all ages and abilities network
- Updated previous plan indicators
- Less extensive engagement; reliance on advisory board

Seattle Findings

Existing Conditions

- No new problems, but a new approach for BMP: all ages and abilities
- Spatial scale a concern, health data

Prioritization

- Highly defensible prioritization methodology
- Well integrated into routines
- Data-driven agency

Seattle Findings

Systems Monitoring

- Tension between meeting outputs and outcomes
- Levy to Move Seattle: $930 million -- sufficient funding and oversight board
- Council-required reporting and implementation reports

Seattle

Use Case		Influences	Indicator Usability	Organizational
Existing conditions		• Reinforced equity conversations	+ More data for BMP compared to 2007 (Salience, Credibility) - Availability (Salience) - Spatial scale, health data (Salience)	+ Financial and technical resources + Elected leadership/culture + Departmental culture + Departmental routines
Prioritization	Within plan	• Project lists	No concerns	+ Financial and technical resources + Departmental culture + Departmental routines
	CIP	• Project list clearly justified	No concerns	
Systems monitoring	Internal analysis	• Not observed	- Meeting (aspirational) targets - Tension between outputs and outcomes	+ Financial and technical resources + Elected leadership/culture + Required reporting + Departmental culture + Departmental routines
	Reporting	• Council pressure to make progress, although a greater focus on projects	No concerns	

+ Facilitator, - Barrier

Seattle

"I would have been called out internally for having an incomplete plan if I didn't have performance measures to report on" (Informant 53)

"There were certain council members who would hold a staff's feet to the fire and say that 'you missed the April 1 deadline'" (Informant 51)

"[Staff] were very reluctant and/or stressed to . . . deviate from what they had programmed, because if they did, they may not hit their deliverable goals that were output focused. And so, it became really hard to . . . align those things . . . with the rest of the program that was not levy-funded, because the levy was such a big, dominant thing in what the city was delivering" (Informant 56)

"A voter-approval accountability structure is very focused on: 'Are you doing the things you promised?' which are about outputs, not outcomes. Not, 'Are you doing the most important things?'" (Informant 56)

Propositions

1: Use depends on organizational embeddedness

- Indicators used when easily integrated into routines
- Indicators also used when routines were changed (double-looping learning)
- Indicators were *influential* depending on embeddedness (including clear use case)

2: Influence depends on the presence of an influential champion or advocacy coalition

- Re: administrative decision-making, organizational factors are more important
- Proposition perhaps better suited to implementation activities
- See also part 2

Rival Propositions

1. Use is strongest with highly valid indicators

- Highly valid = scientifically plausible
- Indicator usability, not technical rigor
- Would need to develop a causal chain between causes and outcomes for all indicators
- No “better” indicators, although accuracy and spatial scale proved important for influence

2. Influence depends on city characteristics and context

- City characteristics could be proxy for cultural or political support (e.g., highest numbers of traffic fatalities in the South; therefore, Memphis less likely to support health indicators)
- However, using Memphis as an example, had a relatively high level of institutionalization within the city (although less so within OCP) but was on opposite end of spectrum from Seattle
- Seattle is most institutionalized with greatest influence on decision-making

Memphis and Seattle

Characteristic[a]	Memphis	Seattle
Population	651,073 (smallest)	753,675 (second largest)
Population density per square mile	2,053 (lowest)	7,251 (second highest)
Population change from 2010 to 2019	-0.1% (only city with decline)	+24% (highest)
Percent white, not Hispanic	25.7 (lowest)	63.8 (highest)
Median household income	$41,228 (lowest)	$92,263 (highest)

[a] All data is from the 2019 American Community Survey's 1-Year Data Estimates, U.S. Census Bureau

Conclusion

Use

- Indicators used as intended, with one unexpected use
- Decision to use indicators can come from various places: Elected, departmental, nonprofit

Institutionalization

- Salient and credible indicator usability factors most important for systems monitoring use case
- Financial and technical resources, elected or departmental leadership, departmental culture and routines, required reporting
- Collaboration not sufficient: “that does not translate to the change we need” (Informant 35)

Administrative Decision-Making

- Indicator influence on decisions depends on degree of institutionalization

Indicators: Social Learning and Policy Change

Literature: Social Learning

Social Learning

- Beliefs are “glue” of politics (Sabatier, 1987)
- Policy learning: Changes in thought about policy goals or solutions
- Policy learning is a confirmed path to policy change (Weible, 2018)
- Communicative learning through dialogue (Innes & Booher, 2000; Innes & Booher, 2004)

Explanatory Factors

- Attributes of forums
- Level of conflict between coalitions
- Type of information
- Attributes of policy actors (beliefs, resources, strategies)

Literature: Policy Change

Policy Change

- Minor policy change/single-loop learning: Change in means (i.e., strategies)
- Major policy change/double-loop learning: Change in goals
- Major policy change likely to occur with a shock to the policy subsystem

Explanatory Factors

- Changes in stable parameters (e.g., cultural values, legal system)
- Changes in dynamic parameters (e.g., election, crisis)
- Short-term and long-term constraints of policy actors (e.g., access, resources)

Policy Paradigms

Conventional vs. People-Centered Transportation

- Automobility (Sheller & Urry, 2008) or motonormativity (Walker et al., 2022) vs.
- Safety-oriented, pedestrians first, access not mobility

Power Politics vs. Data-Driven Management

- “The approach that has been used historically . . . has been a . . . non-linear, non-transparent, non-data-driven approach to where projects get done and which projects get done . . . . It's not equitable. It's largely based on power and community dynamics” (informant 35)

Policy Learning Findings

Learning

- Selection of indicators is first step of framing
- Indicators drew attention to issues as problems, especially equity
- Development of indicators/existing conditions greatest opportunity for learning

Policy Change

- Policy change in goals (major) around people-centered transportation paradigm
- Policy change in strategy (minor) around data-driven management (except Seattle, which had already made this change)

Policy Learning Factors

Attributes of Forums

- Extensive public engagement processes, except Vision Zero Boston and Seattle PMP and BMP
- Indicators primarily built from plan goals by consultants and staff, except Memphis (two-way communication)

Type of Information

- Many indicators are measurable
- Many indicators are social

Policy Learning Factors

Attributes of Actors

- Staff as policy brokers, policy entrepreneurs
- Residents framed problems in Boston and Memphis
- Shared beliefs among mission, plan documents, city staff, and people-centered advocacy coalition
- Only people-centered transportation coalition present

Level of Conflict

- Low level of conflict
- No opposing advocacy coalition
- Indicators were not weaponized

Policy Learning

"It takes thinking outside the box to measure things that people don't know about yet, and then [it] changes the conversation . . . . The fact that Black Bostonians spend so many more hours a year commuting than white bus riders was shocking to people . . . to actually put a number on it made people go, 'Whoa . . . that's a big deal'" (Informant 16)

"Basically, all of the low-income areas of the city . . . include pretty substantial areas of either missing or substandard sidewalk" (Informant 22). This disparity was "very clear to everyone as a part of the process" (Informant 22)

"A lot of the shock came from the expense of transportation in the Indianapolis region, because . . . yeah, housing is cheap here and our wages are super low too, like, but because we lack regional transit . . . there's a huge gap in regional job accessibility and it makes the combined housing and transportation costs the third highest in the country among our peer metros. And that usually takes people aback" (Informant 34).

Dialogue, Argument, Framing

"It was the dialogue, quite frankly . . . you're sitting in a small group around a table with people who live in this community going, 'Whoa, wait a minute here,' and it's like, . . . 'Oh, I had not thought about that'. . . . I think there are a lot of people, including many of the staff members, who are like, . . . 'This is a lot bigger conversation than we intended'" (Informant 21).

"The data that you show pushes your agenda . . . . The fact that we are calling out and even researching how expensive it is to travel in Indianapolis and the disparity . . . I mean, that conveys a value" (Informant 31)

"I think where you can use the data and the indicators . . . not just the numbers . . . but the *point*, the narrative, the messaging around *that*, when you can use that with a broader audience, that includes not just the public, but civic leadership, community stakeholders, or . . . organizational type partners . . . I do think that can push leadership" (Informant 35, original emphasis).

Health Framing

"Having different motivations is all right . . . . The beauty of it was you had all these benefits that you can talk about" (Informant 33)

"The YIMBY's (Yes in my back yard) learn how to speak health and the transit people learn how to talk land use. I don't hear the health indicators, other than perhaps Vision Zero, from anyone else" (Informant 25)

"There are negative health indicators in the African American community, and your solution to that is just giving them bike lanes? Like, how does that help?" (Informant 45)

"I don't really care if they care about health if they're doing the right things . . . I don't need you to understand the benefit to physical activity rates or chronic disease rates or whatever. I just want you to build a complete street . . . If you . . . build a complete street because you think it's going to increase property values or because the business owner who's a big campaign donor gives you money and says to do it, good, I don't care, do the right thing" (Informant 35)

Policy Change Summary

Major: People-centered transportation paradigm

- All plans shifted, with greatest focus on safety, accessibility, and equity
- Primarily staff and non-profit organizations central to policy goals, not elected leadership
- In addition: Seattle voter-approved transit initiative to buy service hours using an access to transit measure in the *Transit Master Plan*

Minor: Data-driven management paradigm

- Data-driven new to all cities except Seattle
- Elected (3) and departmental leadership (1) central to data-driven, except Indianapolis

Policy Change Factors

Stable Parameters

- Change in cultural values regarding people-centered transportation

Dynamic Parameters

- Go Boston 2030 and Vision Zero Boston were created from a mayoral initiative, but no other major elected changes
- No shocks but policy windows and “inflection points” (Informant 21)

Policy Change

"We actually have a policy in Blueprint Denver that states that pedestrians are priorities on every street in Denver . . . and being more inclusive in our processes so we better understand the needs of those communities . . . it's a complete(ly) new . . . way to go about business to be more responsive to people" (Informant 24)

"When you start looking at reduced crashes—I mean, everybody wants that" (Informant 51)

"But there is a different culture now where the people are pushing back saying 'No, we want traffic calming; we don't want our seven-year-olds getting killed . . . as they cross the street for school because they don't have a lot of pedestrian infrastructure'" (Informant 33)

"The inflection point is critical. You know, when you talk about COVID and social justice you're talking about major national, and even international inflection points, but an inflection point can be local too . . . . you just have to figure it out what it is, right?" (Informant 21)

Propositions

1: Health indicators produce policy learning during transportation plan development when:

- A policy actor frames problems using values;
- Within communicative processes; and
- Low to intermediate levels of conflict exist in the policy subsystem

- Informants described how the value of indicators was in "not just the numbers . . . but the *point*, the narrative" (Informant 35, original emphasis). Even before indicators are presented for public discussion, policy actors consider "how [an indicator] serves the narrative that they would like to construct" (Informant 56).
- However, public discussion in communicative processes—either through public engagement, within advisory committees, or during workshops—produced further learning, illustrating that "it was the dialogue, quite frankly" (Informant 31) that enabled indicators to produce social learning.
- Plan development processes with low levels of conflict facilitated social learning.

Propositions

2: Policy learning will generate minor policy change when there are no shocks to the policy subsystem

3: Policy learning will generate major policy change when there are shocks to the policy subsystem

- Consistent with proposition 2, there were no shocks required for minor policy change
- A shift toward people-centered transportation was the major policy change
- No shocks to the policy subsystem – Boston had an election, but leadership not involved much
- Change in cultural values regarding transportation

Conclusion

Learning

- Open forums with low conflict enabled learning (or vice versa)
- Policy subsystem *appears* unitary, but promoted change
- Indicator type did not affect learning
- Important role for problem and policy brokers to frame problems

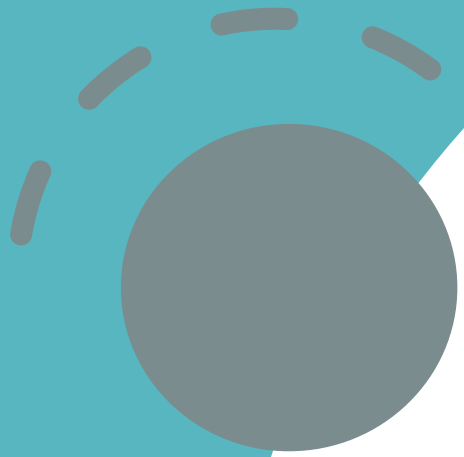
Argumentation and Health

- Indicator selection frames problems
- Engagement process further refines problems, creates learning (policy convergence, ACF)
- Equity sometimes framed as health

Policy Change

- Change in cultural values in people-centered paradigm (major change)
- No shocks required for major policy change
- Embrace of data-driven management by leadership, except Indianapolis

* Will revisit in further research



Conclusion

Other Observations

- MPOs had little to no influence over development or use of indicators
- Evolving indicators a sign of learning and use
- *What Works Cities* certification
  - Gold: Seattle, Memphis
  - Silver: Denver, Boston
- Transit emerged as a key issue in ALL cases
  - Top issue in Boston
  - New charter for DOTI
  - Diverse coalitions, Indianapolis and Memphis
  - Transit measure, Seattle
- Health one option for argumentation; role in building a "bigger tent"
- Vision Zero
  - Softening up: Inherently data-driven approach was credited for increasing familiarity with indicators
  - Clarity/urgency of indicators and action orientation
  - Successful health framing

Contributions

- Indicators understudied at municipal level as compared to MPO and state level
- Examined influence, not just indicator development and use
- Clarified influence as administrative decision-making, social learning, and policy change
- Connected “ideational” policy research with urban planning research (Béland, 2016) and many other literatures
- ACF not typically applied at a municipal level

Limitations

- Applicable to cities between 600,000 and 900,000
  - Tend to be more innovative, have more resources (Marsden & Stead, 2011)
- Limited socio-demographic and political characteristics as explanatory factors
- Indicators are embedded in goals—which informed learning and policy change?
- Social learning operationalization
  - Before-after survey re: topic of learning
  - Identify participatory process characteristics
  - How learning happens from individual to group

Further Research

- Smaller cities or non-principal city
- Link between city and MPO
- Begin with the decision; use indicators as one explanatory factor
- Re-examine policy subsystem and policy change
  - Does the transportation plan represent policy change or does it set the policy agenda?
  - Examine full policy subsystem from planning to implementation—opposing coalitions will make themselves known, not likely unitary subsystem
  - Is the shift to a people-centered transportation paradigm a cultural change or just the view of the winning advocacy coalition? Implementation is the test
- Capital improvement programming
  - The link between planning and implementation
  - How well indicators are institutionalized
  - Does political capital built in planning translate into CIP support? Or implementation support?

For Practice

- Co-develop indicators within inclusive processes
- Right indicator criteria for right use:
  - Existing conditions: Available
  - Prioritize: Spatial scale
  - Systems monitoring: Measurable, reliable, spatial scale, and frequency of collection/reporting
- A mix of outcome and output measures
  - Yes: Outcomes for diagnostic and setting direction
  - *No*: *Outcomes for near-term progress or evaluating projects*
  - Yes: Outputs for measuring accountability*
  - *No*: *Outputs for setting direction*
- Indicators fit into a specific routine or analysis
- Develop accountability mechanisms such as progress reports

* Or create timebound actions

Argument and Health Framing

"In the transportation space we're often in the position of needing to sell the benefits of our projects . . . [so] that when we communicate about projects benefits . . . we try . . . to pander to the needs and issues that are . . . at the forefront of people's thinking . . . . For better or worse, I think a lot of health indicators . . . fall into the bucket of delayed gratification rather than instant gratification . . . we need to sell people on the things that will instantly gratify them (Informant 22).

So again, we're inching towards a collection of actions that we all agree that we should take. The problem is: How deep is that agreement? Was it the type of people who would . . . spend six months on the Climate Action Committee and respond to online surveys—which were, you know, really super cool—but what portion of the high voting propensity, older, high privilege, high political influence electorate was that? Not very (Informant 25).

For the most part, the vast majority of the people that we encountered on the ground in like neighborhood meetings are more project focused . . . . We would go through presentations that talked about the values and about health and the things we're trying to do, but at the end of the day, they're like, "Fine—am I going to get sidewalks or not" (Informant 31)?

Explicit Health Indicator	Plan
All health centers in Boston will be within a 5-minute walk of bus stop, shuttle, train station, *and* protected bicycle facility or shared use path (original emphasis)	Go Boston 2030
Rates of emergency department visits due to asthma among Black and Latinos across all ages will be reduced by 10%	Go Boston 2030
Reduce health inequities between Denver neighborhoods (access to prenatal care; children at a healthy weight; access to fresh food and parks; life expectancy)	Denver Comprehensive Plan 2040
A complete pedestrian network with sidewalks and crossings up to standards and without gaps in areas of health concern (areas with high child obesity rates)	Denver Moves Pedestrians
Rates of obesity	Walkways
Provides a health benefit for people in areas with the greatest reported health needs, represented by obesity rates, physical activity rates (self-reported), and diabetes rates	Seattle BMP
Self-reported physical activity	Seattle BMP

Boston Learning Explanatory Factors

Type of information	Mostly measurable indicators developed from plan goals within communicative processes Health and equity focus of several indicators
Attributes of forums	Engagement processes open to the public City-selected advisory committee members
Level of conflict	Low level of conflict during plan development
Attributes of actors	City staff as policy brokers Highly organized people-centered transportation advocacy coalition during plans development Shared beliefs among plan documents, departmental mission, City staff, and advocacy coalition
Argumentation	Public health directly addressed in Go Boston Public health a secondary message in public communications Public health used to expand coalitions and attract resources

Boston Policy Change Explanatory Factors

Policy learning	Learning through engagement processes, particularly within existing conditions analysis
Change in stable parameters	Change in public values about the role of transportation (e.g., safety, equity, and transit) New Chief of Streets position
Change in dynamic parameters	Change in elected leadership
Policy window	Opened from the political stream (i.e., mayoral initiative)

Denver Learning Explanatory Factors

Type of information	Measurable indicators developed from plan goals within communicative processes Health equity focus of several indicators
Attributes of forums	Engagement processes open to the public City-selected task force members
Level of conflict	Low level of conflict during plan development re: transportation issues
Attributes of actors	City staff as policy broker; other City staff as policy entrepreneur Highly organized people-centered transportation advocacy coalition during plans development Shared beliefs among plan documents, departmental missions, City staff, and advocacy coalition
Argumentation	Public health directly addressed in the Comprehensive plan Recognition by policy actors of using data to tell stories for change Public health not the primary message in public communication; livability lead message Public health used to expand the advocacy coalition

Denver Policy Change Explanatory Factors

Policy learning	Learning through engagement processes, particularly within existing conditions analysis
Change in stable parameters	Change in planning values about the role of transportation (i.e., people-centered)
Change in dynamic parameters	Change in public mood regarding equity due to gentrification concerns
Policy window	Opened from the policy stream (i.e., departmental initiative)

Indianapolis Learning Explanatory Factors

Type of information	Measurable indicators developed from plan goals within communicative processes Public desire for accountability
Attributes of forums	Engagement processes open to the public City-selected advisory committee members
Level of conflict	Low level of conflict during plan development
Attributes of actors	City staff as policy brokers Active policy entrepreneur in a community-based organization Loosely organized people-centered transportation advocacy coalition during plans development Diverse and organized advocacy coalition for a transit initiative Shared beliefs among plan documents, City staff, and advocacy coalition Ambiguous beliefs for departmental mission
Argumentation	Indicator selection driven by beliefs and serve a narrative Public health not a primary message; livability lead message

Indianapolis Policy Change Explanatory Factors

Policy learning	Learning through engagement processes, particularly within existing conditions analysis
Change in stable parameters	Change in public values about the role of transportation (e.g., safety and equity)
Change in dynamic parameters	None
Policy window	Walkways window opened through the policy entrepreneurship of a community-based organization

Memphis Learning Explanatory Factors

Type of information	Indicators without metrics developed from plan goals within communicative processes
Attributes of forums	Engagement processes open to the public City-selected advisory committee members
Level of conflict	Low level of conflict during plan development Some controversy for plan adoption
Attributes of actors	City and residents were problem framers Small people-centered transportation advocacy coalition during plan development Diverse and organized advocacy coalition for the transit plan Shared beliefs among plan documents, City staff, and advocacy coalition
Argumentation	Mayor used data to tell stories for change Public health not a primary message; economics is lead message

Memphis Policy Change Explanatory Factors

Policy learning	Possible learning through engagement processes, particularly within existing conditions analysis Residents brought issues to the attention of the City (e.g., blight, transit)
Change in stable parameters	Change in public values about the role of transportation (e.g., safety, access to opportunity)
Change in dynamic parameters	Memphis ranked high for pedestrian deaths in 2019
Policy window	Opened through the political stream (i.e., mayoral initiative, based on OPM recommendation)

Seattle Learning Explanatory Factors

Type of information	Measurable indicators developed from plan goals within communicative processes
Attributes of forums	Engagement processes open to the public Standing advisory committee members with a strong role in plan development
Level of conflict	Low level of conflict during plan development
Attributes of actors	Shared beliefs among departmental mission, plan documents, City staff, and people-centered advocacy coalition Two advocacy coalitions present
Argumentation	Indicator selection driven by beliefs and serve a narrative Public health not a primary message; safety, equity, and connectivity leads

Seattle Policy Change Explanatory Factors

Policy learning	Indicators may have supported learning but did not drive learning
Change in stable parameters	Change in public values about the role of transportation (e.g., safety, equity)
Change in dynamic parameters	External shock: death of a cyclist downtown
Policy window	Move Seattle (political); PMP, BMP (departmental)

Boston Mission Statements

- Boston Transportation Department's "vision is for Boston's streets to be safe, inclusive, and vibrant"
- LivableStreets "envisions a world where streets are safe, vibrant public spaces that connect people to the places where they live, work, and play"
- "WalkBoston makes walking safer and easier in Massachusetts to encourage better health, a cleaner environment and more vibrant communities"
- Boston Cyclists Union indicates they are "making streets safe for *everybody*"

Denver Mission Statements

- The vision of Community Planning and Development is to make “Denver an inclusive, connected, and healthy city for its people now and in the future”
- Department of Transportation and Infrastructure: “A modern agency focused on increasing mobility and safety while reducing congestion and fighting climate change”
- Denver Streets Partnership: “a coalition of community organizations advocating for people-friendly streets in Denver”

Indianapolis Mission Statements

- The Department of Metropolitan Development is responsible for long-range planning, economic development, and affordable housing and “envisions Indianapolis as a growing, vibrant, and beautiful city where people and businesses thrive in an inclusive, world-class community”
- Department of Public Works supports “Indianapolis by maintaining roads and street closures, the stormwater program, fleet services, and residential services”
- Organization “collaborates across sectors and disciplines to ensure communities in Indiana and beyond have neighborhoods, public spaces, and infrastructure that promote healthy, active living”

Memphis Mission Statements

- “The mission of the Memphis and Shelby County Division of Planning and Development is to develop and administer plans, programs, and services that result in thriving, livable neighborhoods, connected communities, enhanced human potential, and safe and efficient buildings”
- The Office of Performance Management is designed to “help make the City of Memphis more productive, transparent, and accountable for its performance”
- “BLDG Memphis drives investments in Memphis neighborhoods through building capacity in members, public policy, and civic engagement”
- Innovate Memphis: “We develop initiatives, nurture partnerships and innovate solutions to move Memphis forward and deliver impactful, sustained change”

Seattle Mission Statements

- The Seattle Department of Transportation (SDOT) describes Seattle as “a thriving, equitable community powered by dependable transportation” with a mission “to deliver a transportation system that provides safe and affordable access to places and opportunities”
- Seattle Neighborhood Greenways: “Making Seattle a safer, healthier and more equitable place to live”
- Cascade Bicycle Club: “We envision a safe and healthy future where bicycles bring people together, eliminate inequity, and create thriving communities”

References

Arygris, C. & Schön, D.A. (1996). *Organizational learning II: Theory, method and practice*. Addison-Wesley.

Bauler, T. (2012). An analytical framework to discuss the usability of (environmental) indicators for policy. *Ecological Indicators, 17*, 38-45.

Bell, S. & Morse, S. (2011). An analysis of the factors influencing the use of indicators in the European Union. *Local Environment, 16*(3), 281-302.

Béland, D. (2016). Kingdon reconsidered: Ideas, interests and institutions in comparative policy analysis. *Journal of Comparative Policy Analysis: Research and Practice, 18*(3), 228-242.

Béland, D. & Katapally, T.R. (2018). Shaping policy change in population health: Policy entrepreneurs, ideas, and institutions . *International Journal of Health Policy and Management, 7*(5), 369-373.

Cash, D.W., Clark, W.C., Alcock, F., Dickson, N.M., Eckley, N., Guston, D.H., Jäger, J., & Mitchell, R.B. (2003). Knowledge systems for sustainable development. *Proceedings of the National Academy of Sciences, 100*(14), 8086-8091.

Cash, D.W., Clark, W.C., Alcock, F., Dickson, N.M., Eckley, N. & Jäger, J. (2002). *Salience, credibility, legitimacy and boundaries: Linking research, assessment and decision making*. KSG Working Paper Series, Harvard University.

Contandriopoulos, D., Lemire, M., Denis, J.L., & Tremblay, E. (2010). Knowledge exchange processes in organizations and policy arenas: A narrative systematic review of the literature. The Milbank Quarterly, 88(4), 444-483.

References

Fischer, T.B., Kidd, S., Jha-Thakur, U., Gazzola, P., & Peel, D. (2009). Learning through EC directive based SEA in spatial planning? Evidence from the Brunswick Region in Germany. *Environmental Impact Assessment Review, 29*(6), 421-428.

Gudmundsson, H. & Sørensen, C.H. (2013). Some use-little influence? On the role of indicators in European sustainable transport policy. Ecological Indicators, 35, 43-51.

Innes, J.E. & Booher, D.E. (2000). Indicators for sustainable communities: A strategy building on complexity theory and distributed intelligence. Planning Theory & Practice, 1(2), 173–186.

Innes, J.E. & Booher, D.E. (2004). Reframing public participation: Strategies for the 21st century. *Planning Theory & Practice, 5*(4), 419-436.

Kingdon, J. (1995). *Agendas, alternatives, and policy* (2nd ed.). Harper Collins.

Landry, R., Lamari, M., & Amara, N. (2003). The extent and determinants of the utilization of university research in government agencies. *Public Administration Review, 63*(2), 333-349.

Oliver, K., Innvær, S., Lorenc, T., Woodman, J., & Thomas, J. (2014). A systematic review of barriers to and facilitators of the use of evidence by policymaker. *BMC Health Services Research, 14*(1). DOI: 10.1186/1472-6963-14-2.

Sabatier, P.A. (1987). Knowledge, policy-oriented learning and policy change: An advocacy coalition framework. *Knowledge: Creation, Diffusion, Utilization, 8*(4), 649-692.

References

Sébastien, L. Bauler, T. & Lehtone, M. (2014). Can indicators bridge the gap between science and policy? An exploration into the (non)use and (non)influence of indicators in EU and UK policy making. *Nature + Culture 9*(3), 316–343.

Sheller, M. & Urry, J. (2008). The city and the car. *International Journal of Urban and Regional Research, 24*(4), 737-757.

Walker, I., Tapp, A., & Davis, A. (forthcoming). Motonormativity: How social norms hide a major public health hazard. *International Journal of Environment and Health*. In preparation.

Weible, C.M. (2008). Expert-based information and policy subsystems: A review and synthesis. *Policy Studies Journal, 36*(4), 615-635

Weible, C.M. (2018). Instrument constituencies and the advocacy coalition framework: An essay on the comparisons, opportunities, and intersections. *Policy and Society, 37*(1), 59-73.

Weiss, C.H. (1977). Research for policy's sake: The enlightenment function of social research. *Policy Analysis, 3*(4), 531-545

Weiss, C.H. (1979). The many meanings of research utilization. *Public Administration Review, 39*, 426-431.

Weiss, C.H. (1991). Policy research: Data, ideas, or arguments? In P. Wagner (Ed.) *Social sciences and modern states: National experiences and theoretical crossroads* (pp. 307- 332). Cambridge University Press.

Weiss, C.H. & Bucuvalas, M. (1980). Truth tests and utility tests: Decision-makers' frames of reference for social science research. *American Sociological Review, 45*(2), 301-313

Portland State University

PDXScholar

PSU Transportation Seminars

Transportation Research and Education Center (TREC)

4-20-2023

The Use And Influence Of Health Indicators In Municipal Transportation Plans

Kelly Rodgers
Portland Sate University, krodge2@pdx.edu

Follow this and additional works at: https://pdxscholar.library.pdx.edu/trec_seminar

 Part of the Transportation Commons, Urban Studies Commons, and the Urban Studies and Planning Commons

Let us know how access to this document benefits you.

Recommended Citation
Rodgers, Kelly, "The Use And Influence Of Health Indicators In Municipal Transportation Plans" (2023). *PSU Transportation Seminars*. 239.
https://pdxscholar.library.pdx.edu/trec_seminar/239

This Book is brought to you for free and open access. It has been accepted for inclusion in PSU Transportation Seminars by an authorized administrator of PDXScholar. Please contact us if we can make this document more accessible: pdxscholar@pdx.edu.