The CDPH Way—*"Becoming the Best at Getting Better"*

Update for CCLHO/HOAC Semi-annual Meeting

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Outline

1. Selected announcements
2. The CDPH Way — *"Becoming the Best at Getting Better"*
3. Become an impactful organization — with OKRs
4. Develop our people — Decision intelligence
5. Tackle key public health challenges — preventive behavioral health

Selected announcements

CDPH 2023 State Health Assessment Core Module Webinar[1]

State Health Assessment Core Module

Presenter: Dr. Michael C. Samuel, DrPH, Data Scientist and Epidemiologist and Jaspreet Kang, Research Data Analyst

Highlights from the State of Public Health

Presenter: Dr. Tomás Aragón, MD, DrPH, CDPH Director and State Health Officer
Wednesday, May 10, 2023, 10:30 a.m. to 12:00 noon
11:30 a.m. to 12:00 p.m. - Optional 30-minute extended Webinar Q&A

To register for webinar: https://cdph-ca-gov.zoom.us/meeting/register/tZIld--orDgvHNJWoA9H95unEmQtSnjHmg0D#/registration
For questions or webinar tech support, please contact the LGHC@cdph.ca.gov

[1] https://skylab.cdph.ca.gov/communityBurden/_w_71d35810/SOPH/2023/Full%20Report.html

California Regional Trauma Responsive Training

Although many of the challenges we currently face in public health existed prior to Covid, pandemic challenges compounded these vulnerabilities. The cumulative and compounding impact of this toxic stress and harm often manifest as:

- Communications breakdown
- Demoralization and career dissatisfaction
- Burnout – Exhaustion – Compassion fatigue
- Disconnection and disengagement
- Uncivil or aggressive behavior
- Attrition and early retirement

California Regional Trauma Responsive Training: What are the objectives?

1. Develop a shared understanding and vocabulary about the incidence and impact of toxic stress and trauma on the public health workforce
2. Expand understanding and recognition of stress, toxic stress, primary secondary and vicarious trauma, moral distress, and the traumas of moral injury
3. Recognize how recruitment and retention are impacted by toxic stress in the culture, and how an ecological approach to culture building can restore the public health workforce
4. Understand and practice immediately actionable leadership skills and tools for trauma-responsive engagement and culture building
5. Recognize the universality of harm, understand activation of threat, and learn and practice skills to mitigate toxic stress
6. Describe the creation of trauma-responsive cultures and practice strategies that disrupt the stress-toxic stress-trauma continuum and mitigate harm
7. Understand the neuroscience underpinning human threat-detection systems and what occurs both neurologically and physiologically when that system gets activated.
8. Be introduced to a wide variety of tools and skills that will be taught, modeled, and practiced in faculty-facilitated small groups

California Regional Trauma Responsive Training: Schedule

Region	Location	Dates
Southern California	Los Angeles	May 17th – 19th
Greater Sierra–Sacramento	Sacramento	Virtual: 5/31, 6/7, 6/14
		In-Person: 6/19 – 6/20
Rural North	Sacramento	Virtual: 7/31, 8/7, 8/14
		In-Person: 8/21 – 8/22
Bay Area	Alameda	September 12th – 14th
Central California	San Joaquin	October 17th – 19th

The CDPH Way — *"Becoming the Best at Getting Better"*

The CDPH Way — *"Becoming the Best at Getting Better"*

1. Become a learning, healing, impactful organization
   - Deploy lean with Objectives and Key Results[a]
   - Become trauma-informed and responsive
   - Promote equity, antiracism, and health equity
2. Develop our people
   - Ensure core public health competencies
   - Support personal professional development
3. Tackle key public health challenges
   - The Future of Public Health Initiative
   - Preventive mental and behavioral health
   - Community and Population Health Improvement
   - Emergency readiness and pandemic recovery
   - Climate action and community resilience

Figure: Transformation theory of change

[a] For OKRs see https://www.whatmatters.com/get-started

The CDPH Way — *"Becoming the Best at Getting Better"*

Lean thinking and practice is "systematically developing people to solve problems and consuming the fewest possible resources *while* continuously improving processes to provide value to community members and prosperity to society"[2]

These six components make up the CDPH lean operating system:

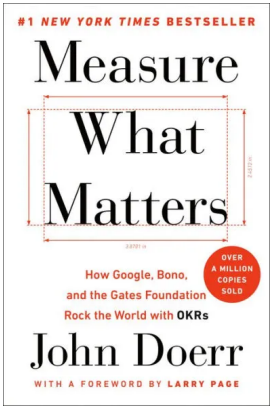
1. Respect for people (staff, community, client, patient, customer)
2. Continuous improvement (incremental and breakthrough) (improvement kata)
3. Scientific thinking, problem solving, and innovation (A3 thinking)
4. Management by Objectives (goals) and Key Results (measures) (OKRs)[3]
5. Being agile, adaptive, and responsive to meet challenges and opportunities
6. Elimination of waste and undesired variability in inputs, processes, outputs, and outcomes

[2] https://www.lean.org/the-lean-post/articles/public-service-leans-next-frontier/

[3] See "Objectives and Key Results" (OKRs) at https://www.whatmatters.com/get-started

Become an impactful organization — with OKRs

OKRs is a goal setting and leadership best practice[4, 5]



[4] https://www.whatmatters.com/

[5] https://www.coursera.org/learn/okr (highly recommended)

What are OKRs?

OBJECTIVES AND KEY RESULTS

OKRs are a management methodology which helps to ensure that your company focuses efforts on the same important issues throughout the organization.

OBJECTIVES

An Objective is what you want to accomplish.

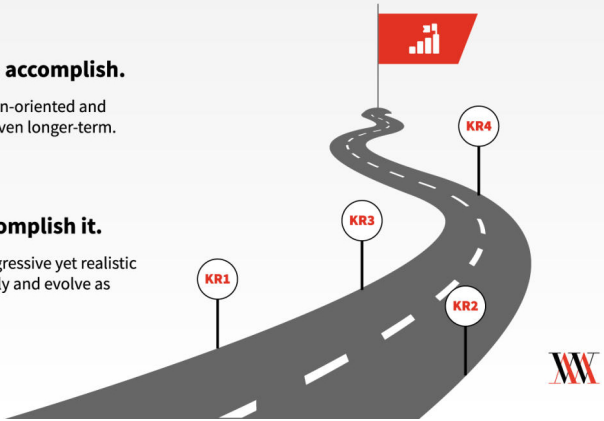
A good Objective is significant, concrete, action-oriented and inspirational. Can be set annually or over an even longer-term.

KEY RESULTS

Key Results are how you will accomplish it.

Good Key Results are specific, timebound, aggressive yet realistic measurable and verifiable. Can be set quarterly and evolve as work progresses.

What Matters

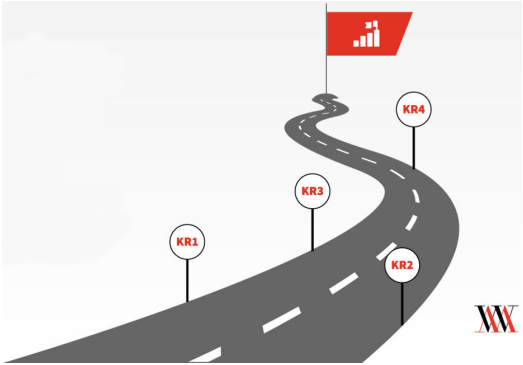


Source: OKR Certification: Leadership and Goal Setting (https://www.coursera.org/learn/okr)

4. Management by Objectives (*what*) and Key Results (*how*) (OKRs)[6]

OKRs lead to FACTS!!!

1. F → Focus
2. A → Alignment
3. C → Commitment
4. T → Tracking
5. S → Stretching



[6] See "Objectives and Key Results" (OKRs) at https://www.whatmatters.com/get-started

How do OKRs relate to lean, RBA, ICS, project management, etc.?

Goal setting is core to all these frameworks.

- OKRs is a goal-setting and leadership best practice for tracking and achieving your most important, transformative goals.
- Lean is a system for organizational learning and improvement based on worker empowerment; scientific thinking, problem solving, and innovation; elimination of waste; and delivering sustainable improvements for primary customers.
- RBA is a framework for engaging partners and communities for tackling health problems using "collective impact."

An Action Plan for Solving Our Climate Crisis Now—Objectives (goals)[7]

[7] See https://speedandscale.com/

An Action Plan for Solving Our Climate Crisis Now—Key Results (metrics)

1 Electrify Transportation

Reduce 8 gigatons of transportation emissions to 2 gigatons by 2050.

- **KR 1.1** Price
  EVs achieve price-performance parity with new combustion-engine vehicles in the U.S. by 2024 ($35K), and in India and China by 2030 ($11K).
- **KR 1.2** Cars
  One of two new personal vehicles purchased worldwide are EVs by 2030, 95% by 2040.
- **KR 1.3** Buses and Trucks
  All new buses are electric by 2025 and 30% of medium and heavy trucks purchased are zero-emission vehicles by 2030, 95% of trucks by 2045.
- **KR 1.4** Miles
  50% of the miles driven (2-wheelers, 3-wheelers, cars, buses, and trucks) on the world's roads are electric by 2040, 95% by 2050.
  ↓ 5 Gt
- **KR 1.5** Planes
  20% of miles flown use low-carbon fuel by 2025; 40% of miles flown are carbon-neutral by 2040.
  ↓ 0.3 Gt
- **KR 1.6** Maritime
  Shift all new construction to "zero-ready" ships by 2030.
  ↓ 0.6 Gt

2 Decarbonize The Grid

Reduce 24 gigatons of global electricity and heating emissions to 3 gigatons by 2050.

- **KR 2.1** Zero Emissions
  50% of electricity is from zero-emissions sources by 2025, 90% by 2035 (from 38% in 2020).*
  ↓ 16.5 Gt
- **KR 2.2** Solar and Wind
  Solar and wind are cheaper to build and operate than emitting sources in 100% of countries by 2025 (up from 67% in 2020).
- **KR 2.3** Storage
  Electricity storage is below $50 per kWh for short duration (4–24 hours) by 2025, $10 per kWh for long duration (14–30 days) by 2030.
- **KR 2.4** Coal and Gas
  No new coal or gas plants after 2021; existing plants to retire or zero out emissions by 2025 for coal and by 2035 for gas.*
- **KR 2.5** Methane Emissions
  Eliminate leaks, venting, and most flaring from coal, oil, and gas sites by 2025.
  ↓ 3 Gt
- **KR 2.6** Heating and Cooking
  Cut gas and oil for heating and cooking in half by 2040.*
  ↓ 1.5 Gt
- **KR 2.7** Clean Economy
  Reduce reliance on fossil fuels and increase energy efficiency to quadruple clean energy productivity rate (GDP ÷ fossil fuel consumption) by 2035.

This is the timeline for developed countries. For developing countries, this key result is expected to take more time (5-10 years).

3 Fix Food

Reduce agricultural emissions from 9 gigatons to 2 gigatons by 2050.

- **KR 3.1** Farm Soils
  Improve soil health through practices that increase carbon content in topsoils to a minimum of 3%.
  ↓ 2 Gt
- **KR 3.2** Fertilizers
  Stop the overuse of nitrogen-based fertilizers and develop greener alternatives to cut emissions in half by 2050.
  ↓ 0.5 Gt
- **KR 3.3** Consumption
  Promote lower-emissions proteins, cutting annual consumption of beef and dairy 25% by 2030, 50% by 2050.
  ↓ 3 Gt
- **KR 3.4** Rice
  Reduce methane and nitrous oxide from rice farming by 50% by 2050.
  ↓ 0.5 Gt
- **KR 3.5** Food Waste
  Lower the food waste ratio from 33% of all food produced to 10%.
  ↓ 1 G

Live Well San Diego—Vision, Strategy, Objectives, and Key Results

Live Well San Diego—Objectives (goals) and Key Results (metrics)

Language discipline[8]

Term	Synonym	Description	Rationale
Objective	goal, target condition	qualitative	focus, align, commit, inspire, motivate
Key Results	measure, target, indicator	quantitative	track, stretch, learn, adjust, improve
Activities	project management tasks or milestones	"A" in "OKRA"	implement, deploy

[8] Concept from Mark Friedman, Trying Hard Is Not Good Enough: How to Produce Measurable Improvements for Customers and Communities. Parse Publishing; 3e (2018)

Key Results are selected metrics of inputs, processes, outputs, or outcomes

	Performance measures (program, agency, or service system)[a]			
	Leading indicators (effort)			Population indicators[a] Lagging indicators (effect)
	Inputs	**Processes**	**Outputs**	**Outcomes**
		(1. How much did we do?)[a]		*(3. Is anyone better off?)*[a]
Quantity	funding	cycle and lead times	average or median wait time	circumstances (social, environmental)
	materials	value- and non-value-added times	# on schedule	knowledge, attitudes, beliefs, skills
	supplies	*mura* (unevenness) and variation	# products/services met std	risk and protective factors
	approvals	*muda* (waste)	# clients served at standard	health and wellness
	staffing	*muri* (overburden)	# defects	disease, injury, disability, and death
				systems and culture (behaviors) change
				staff and community engagement
		(2. How well did we do?)[a]		*(3. Is anyone better off?)*[a]
Quality	funding	cycle and lead times	average or median wait time	circumstances (social, environmental)
	materials	% value- and non-value-added times	% on schedule	knowledge, attitudes, beliefs, skills
	supplies	*mura* (unevenness) and variation	% products/services met std	risk and protective factors
	approvals	*muda* (waste)	% clients served at standard	health and wellness
	staffing	*muri* (overburden)	% defects	disease, injury, disability, and death
				systems and culture (behaviors) change
				staff and community engagement

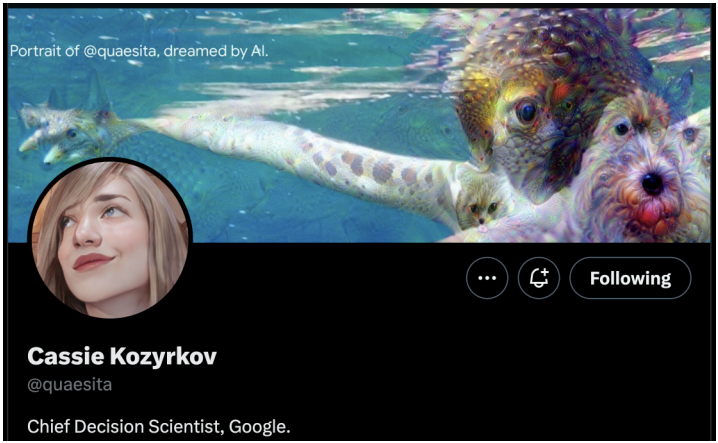
[a] Categories and three performance accountability questions used in Results-Based Accountability™ (RBA)

Develop our people — Decision intelligence

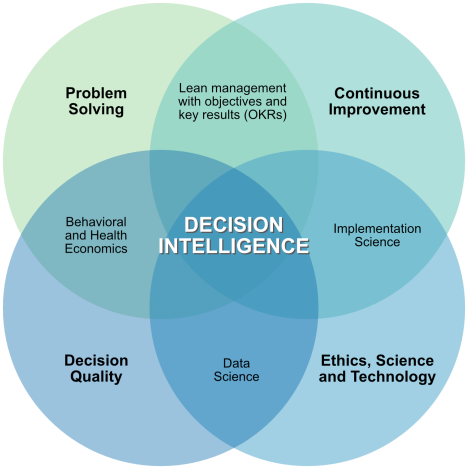
Decision intelligence—Cassie Kozyrkov, Chief Decision Scientist, Google.

"Decision intelligence is about giving yourself the skills and tools to turn information (whether it's your memories of lunch conversations or it's your foray through a massive database) into better actions (decisions!) at any scale (from tapas bites to petabytes) and in any setting (from picking a college major to building an AI system)."

Cassie Kozyrkov (@quaesita)
Chief Decision Scientist, Google.



Decision intelligence

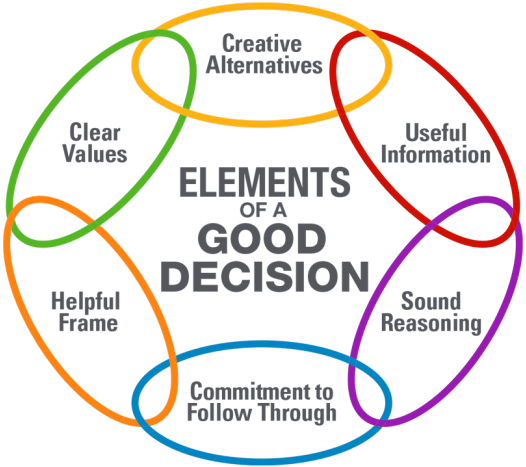


Decision-making is our most important activity. "A decision is a choice between two or more alternatives that involves an irrevocable allocation of resources." Decisions drive vision, strategy, policy, and transformational change. Every decision has causal assumptions, predictions, trade-offs, and an opportunity cost—the lost benefits of the better option(s) not chosen or not considered.

Decision intelligence is using ethics, science and technology to improve individual and team decisions for finding and solving problems, and achieving Objectives and Key Results in challenging, including VUCA,[a] environments.

[a] volatile, uncertain, complex, and ambiguous

Decision quality (DQ)—Six elements of a good decision[9]



[9] See video from https://www.decisioneducation.org/

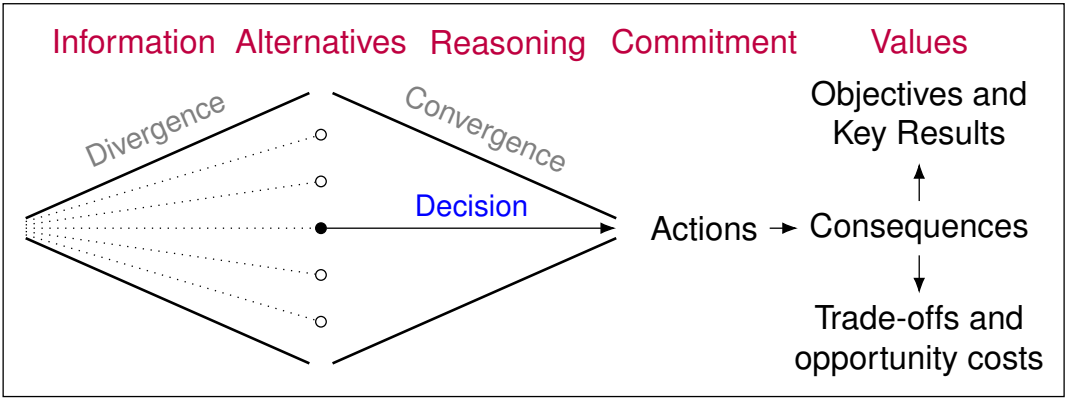
Decision quality (DQ)—Six elements of a good decision[10]

To improve decision making use the six elements of a good decision as a mental checklist or standard work for planning and making decisions.

No.	Requirement	Key question to ask
1	Helpful Frame	Are we clear on the problem we are solving?
2	Clear Values	Have we identified what we truly want?
3	Creative Alternatives	Do we have a good set of alternatives?
4	Useful Information	Have we gathered the relevant information?
5	Sound Reasoning	How will we evaluate alternatives to find the one that gets us the most of what what we truly want?
6	Commitment to follow through	Are we committed to follow through on our choice?

[10] See video from https://www.decisioneducation.org/

Decision quality (DQ)—Graphical depiction of the six elements[11]



[11] See blog https://drtomasaragon.github.io/#category=Decision%20intelligence

Biases come from prior beliefs and belief-consistent information processing[12]

Model: Prior belief + belief-consistent information processing → cognitive biases

Fundamental beliefs

1. My experience is a reasonable reference (eg, false consensus bias).
2. I make correct assessments of the world (eg, blind spot bias).
3. I am good (eg, better-than-average effect, self-serving bias).
4. My group is a reasonable reference (eg, ethnocentric bias).
5. My group (members) is (are) good (eg, in-group bias, partisan bias).
6. People's attributes (not context) shape outcomes (eg, fundamental attribution error, outcome bias).

[12] Aileen Oeberst, et al (2023). Toward Parsimony in Bias Research: A Proposed Common Framework of Belief-Consistent Information Processing for a Set of Biases. DOI: https://doi.org/10.1177/17456916221148147

"Driving to the Knowns" for making decisions under uncertainty[13, 14]

Indentification	**Certainty of information or knowledge**		
(leadership awareness)	Certain (known)	Uncertian but resolvable (probability → risk)	Uncertain and unresolvable (deep vs radical uncertainty)
Known	**"Known knowns"** (identified knowledge) Tangble → Use it!	**"Known unknowns"** (identified risk) Accessible → Assemble it!	**"Known unknowns*"** (identified d/r uncertainty) Possible → Plan for it!
Unknown	**"Unknown knowns"** (blind spot) Hidden → Seek it!	**"Unknown unknowns"** (unidentified risk) Hidden → Seek it!	**"Unknown unknowns*"** (unidentified d/r uncertainty) Abstract → Imagine it!

[13] Seong Dae Kim (2014). https://www.tandfonline.com/doi/abs/10.1080/13669877.2014.983949

[14] John Kay & Mervyn King. Radical Uncertainty: Decision making beyond the numbers. Norton 2021

Advances in Artificial Intelligence for Infectious-Disease Surveillance[15]

Function	Examples
Early warning 	• Natural-language processing of news sources to identify outbreaks (Freifeld et al., *JAMIA* 2008) • Unsupervised machine learning of social media data to detect unknown infections (Lim, Tucker, and Kumara, *J Biomed Inform* 2017)
Pathogen classification 	• Convolutional neural network model for reading antibiograms (Pascucci et al., *Nat Commun* 2021) • Convolutional neural network model to automate malaria microscopy and diagnosis (Liang et al., *IEEE* 2016)
Risk assessment 	• Reinforcement learning of Covid-19 positivity rates to target limited testing in Greece (Bastani et al., *Nature* 2021) • Machine-learning models including random forest and extreme gradient boosting to use syndromic surveillance for Covid-19 risk prediction (Dantas, *PLoS One* 2021)
Source identification 	• Automated data mining of electronic medical records to uncover hidden routes of infection transmission (Sundermann et al., *Clin Infect Dis* 2021) • Supervised machine learning in combination with digital signal processing for genomic tracing of Covid-19 (Randhawa et al., *PLoS One* 2020)
Hotspot detection 	• Neural computing engine to correlate sound from hospital waiting rooms with influenza spikes (Al Hossain et al., *Proc ACM Interact Mob Wearable Ubiquitous Technol* 2020) • Multilayer perceptron artificial neural network model to detect spatial clustering of tuberculosis (Mollalo et al., *Int J Environ Res Public Health* 2019)
Tracking and forecasting 	• Real-time stacking of multiple models to improve forecasts of seasonal influenza (Reich et al., *PLoS Comput Biol* 2019) • Machine learning to combine new data sources for monitoring Covid-19 (Liu et al., *J Med Internet Res* 2020)

[15] Source: https://www-nejm-org.libproxy.berkeley.edu/doi/full/10.1056/NEJMra2119215

JAMA Int Med (2023): Comparing Physician and Artificial Intelligence Chatbot Responses to Patient Questions Posted to a Social Media Forum[16]

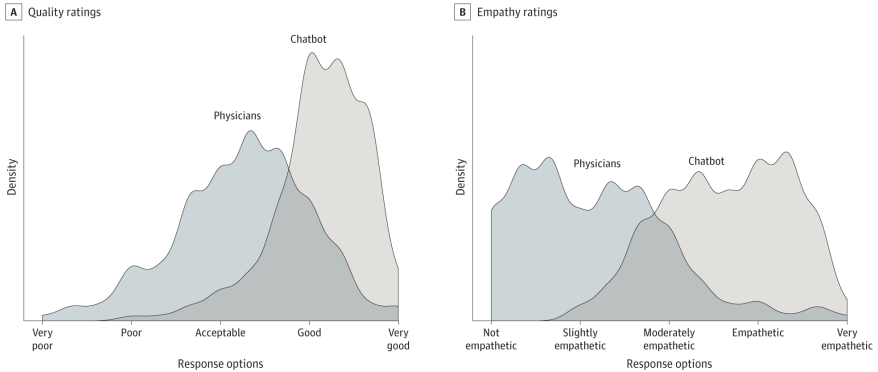


Figure: Quality and Empathy Ratings for Chatbot and Physician Responses to Patient Questions

[16] https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2804309

OKR thinking for decision making

Consider a 75 year old person unvaccinated and symptomatic with COVID-19, and with no contraindications to taking Paxlovid.

Should patient take Paxlovid? (decision options Yes versus No)

Objective		Paxlovid (option)	
(outcome)		Yes	No
Hospitalization	Yes	a	b
	No	c	d
Key Results		$a/(a+c)$	$b/(b+d)$

OKR thinking for decision making

Consider a 75 year old unvaccinated person, never had Covid, and with no contraindications to receiving mRNA Covid vaccine.

Should patient get vaccinated? (options Y/N)

Objectives	mRNA vaccine (option)		**Key Results**	
(outcomes)	Yes	No	Risk diff.	Vacc. Eff.
Minimize vaccine adverse events	r_{11}	r_{10}	$r_{10} - r_{11}$	
Minimize cases	r_{21}	r_{20}	$r_{20} - r_{21}$	$1 - r_{21}/r_{20}$
Minimize hospitalizations	r_{31}	r_{30}	$r_{30} - r_{31}$	$1 - r_{31}/r_{30}$
Minimize deaths	r_{41}	r_{40}	$r_{40} - r_{41}$	$1 - r_{41}/r_{40}$
Key Results	$f(r_{i1} \mid vax = Y)$	$f(r_{i2} \mid vax = N)$		

OKR thinking for crisis decision making under deep uncertainty[17]

TABLE 5
Consequence Table Example Applied to the SIP Decision[a]

Objectives (Value-Based Goals)	Alternatives			
	No SIP	SIP Rec-Now	SIP Order-Now	SIP Order-Wait
Minimize cases and deaths	−2	0	+2	−1
Minimize hospital/ICU surge	−2	0	+2	−1
Minimize economic disruption now	+2	0	−2	−2
Minimize economic disruption later	−2	0	+2	+2
Total	−4	0	+4	−2

Abbreviations: ICU, intensive care unit; Rec, recommendation; SIP, shelter in place.

[a] Example applied to the SIP decision: objectives (column 1), alternatives (columns 2-5), and consequences (outcomes as qualitative assessment of the extent that an alternative achieves each objective: +2 = definitely yes; +1 = likely yes; 0 = neutral or not sure; −1 = likely no; and −2 = definitively no).

[17] Aragon TJ, et al. Crisis Decision-Making at the Speed of COVID-19: Field Report on Issuing the First Regional Shelter-in-Place Orders in the United States. J Public Health Manag Pract (2021). https://doi.org/10.1097/phh.0000000000001292

Tackle key public health challenges — preventive behavioral health

CDPH-Wide Behavioral Health Framework

Ongoing efforts to develop a comprehensive life course developmental and ecological continuum of policies and services across all geographic and population groups

- Promoting women's overall health & well-being
  (ie, single moms; income and employment supports; childcare)
  - Women, Infants, and Children (WIC) Division
  - Home Visiting Program
- Early Child Development
  - Essentials for Childhood / All Children Thrive
  - Black Infant Health Program
- School-Age Children
  - OHE - Mental Health in Schools
  - Youth Cannabis Prevention Initiative
- Transitional Age Youth
  - Substance Abuse Prevention Program
  - Violence Prevention Initiative, includes data and surveillance (CalVDRS)

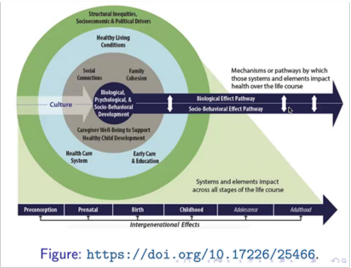


Figure: https://doi.org/10.17226/25466.

1. Ecological-social ("eco-social")
2. Life course and inter-generational
3. Equity, antiracism, and health equity
4. Prevention, esp. primary prevention

JM Shultz, L Sullivan, S Galea. Public Health: An Introduction to the Science and Practice of Population Health. Springer Publishing Company, 2019

CDPH Youth Behavioral Health Program Titles

Maternal, Child, and Adolescent Health

- Adolescent Family Life Program
- Black Infant Health Program
- California Home Visiting Program
- Local MCAH Programs
- Adolescent and Young Adult Behavioral Health COIIN
- Children and Youth with Special Health Care Needs Innovation Grants
- Adolescent Sexual Health Education Programs
- MCAH Data and Surveillance
- Behavioral Mental Health Program

Office of Health Equity

- Child Youth Behavioral Health Initiative

California Reducing Disparities Project (CRDP) – including the following 21 projects

- CA Black Women's Health Project
- Whole Systems Learning
- Safe Passages
- The Village Project Inc.

Office of Health Equity – CRDP Continued…

- West Fresno HealthCare Coalition
- Gender Spectrum
- The Center for Sexual & Gender Diversity
- LGBTQ Connection
- San Joaquin Pride Center
- Two Feathers Native American Family Services
- Indian Health Council
- Friendship House Association of American Indians
- Indian Health Center of Santa Clara Valley
- Native American Health Center
- Sonoma County Indian Health Project
- United American Indian Involvement
- East Bay Asian Youth Center
- Catholic Charities of East Bay
- Integral Community Solutions Institute
- La Clinica De La Raza
- Latino Service Providers

Injury and Violence Prevention

- Office of Suicide Prevention
- Comprehensive Suicide Prevention Program
- Essentials for Childhood Initiative
- School-Based Health Center Program
- Sexual Violence/Rape Prevention and Education Program
- Teen Dating Violence Prevention Program

Substance and Addiction Prevention

- California Cannabis Surveillance System
- Overdose Surveillance
- Friday Night Live – (OPG and Cannabis)
- California Excessive Alcohol Use Prevention Initiative
- Overdose Prevention Initiative (OPI) Media Campaign
- OPI Local Overdose Prevention Safety Coalitions
- Youth Cannabis Education and Prevention Media Campaign

CDPH Behavioral Health Program Strategy & Population Focus

Strategy Themes

- Policy, Systems, and Environmental Change
- Social Norm Change
- Surveillance and Evaluation
- Technical Assistance and Training
- Media Campaigns/Outreach
- Funding Community-based Organizations
- Evidence and Group-based Models

Population Focus

- Population-wide
- African American, API, Latinos, LGBTQ, and Native American
- Infants and Children
- Girls and Women
- Foster and Adjudicated Youth
- Pregnant/Parenting (21 years and younger)
- Most programs incorporate youth that fall between ages 13-19

Summary — Any questions?

1. Selected announcements
2. The CDPH Way — *"Becoming the Best at Getting Better"*
3. Become an impactful organization — with OKRs
4. Develop our people — Decision intelligence
5. Tackle key public health challenges — preventive behavioral health

"Leadership is getting results in a way that inspires trust." . . . SMR Covey

1. Have Character: with integrity, be ethical, honest, sincere, and loyal
2. Be Caring: be compassionate; ensure equity and dignity; and be kind
3. Be Competent: be capable, consistent, and continuously improving; and seek frank and honest feedback from trusted critics
4. Be Humble: cultivate general, intellectual, and cultural humility
5. Be Accountable: own your influence and responsibilities; own your mistakes and failures, apologize and make amends
6. Be Reliable: keep promises and commitments, and be on time
7. Be Transparent (clarity): communicate intent [what], motive [why], agend [how: who, when, where], and expectations
8. Ensure Safety (psychological, physical, and emotional): listen mindfully, respect boundaries, assume good intent, risk vulnerability, and be curious—not judgmental