Blue Adapt

Information as Adaptation

Do pathogen-risk education and timely risk information change choices, behaviour and welfare?

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The policy problem: invisible risk

Coastal bathing is valuable, but users cannot usually observe microbial contamination.

Beachgoers see weather, crowds and amenities
They do not see E. coli, enterococci, Vibrio or cyanobacteria

Invisible microbial risks

Exposure decisions are made under imperfect information; microbial hazards are mostly not observable when people choose whether and where to bathe.

Climate raises the stakes

Warmer waters and more intense rainfall make episodic pathogen risks and short-term closures more policy-relevant.

Two meanings of information

1) Risk education: campaigns and explanations that change knowledge, valuation and behavior.
2) Timely risk information: monitoring results, forecasts or warnings that help users act.

Core argument: information can be adaptation in two ways - by educating people about risks and by giving them current risk signals.

Our study links the two: risk education changes knowledge, preferences, behaviour and valuation of monitoring / timely risk information.

The welfare question follows: if education and access to risk signals affect choices and valuations, both should enter benefit-cost analysis.

Where this study fits in BlueAdapt

A behavioural-economics case study inside a broader climate-health adaptation programme.

Climate & pressure	warming, rainfall, runoff, wastewater
State	pathogens, AMR, blooms
Exposure	recreation choices, warnings, avoidance
Effects	infection risk, welfare loss
Actions	monitoring, communication, forecasting, mitigation

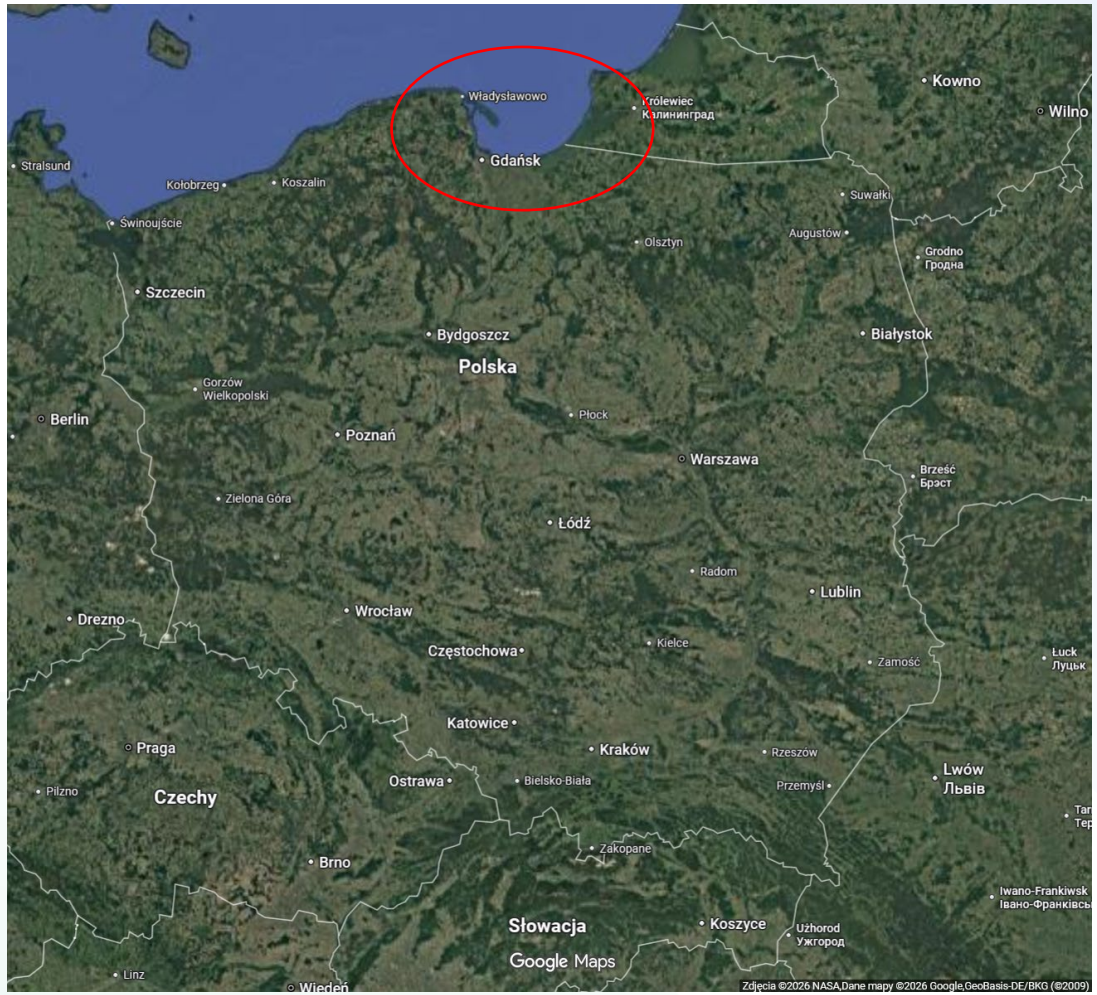
BlueAdapt contributes multiple evidence streams: Forecasting · Monitoring · Apps · CBA · Toolkit

The randomized panel study gives causal evidence on risk education -> knowledge -> preferences and behaviour; BlueAdapt CBA uses these shifts to appraise campaigns, monitoring and timely-risk information systems.

Other BlueAdapt outputs - forecasting, early-warning apps, One Health pilots and the pan-European CBA/toolkit - are complementary. Some are still being analysed; vulnerability, heterogeneity and behavioural response are work in progress.

Study setting: Gulf of Gdańsk and Vistula Lagoon

A high-use recreation system with open coast, semi-enclosed waters and episodic closures.



Why this site?

The region combines intensive seasonal tourism with limited water exchange in parts of the system and vulnerability to riverine runoff and pathogen accumulation.

3.3M

visitors in 2024, largely concentrated in summer

~1mo

routine monitoring interval

Official 2023 closure statistics in Poland

146

cyanobacteria-linked closures

41

E. coli-linked closures

34

enterococci-linked closures

Interpretation for external validity: this is not an exotic outlier; it is a concrete European bathing-water setting where public information exists but is fragmented and unevenly understood.

Four evidence layers for a 40-minute policy seminar

Each maps to a decision margin or appraisal input that policy can influence.

1

Do people learn from risk education?

Manipulation checks: objective and subjective knowledge after randomized scripts.

2

Does education change preferences and valuation?

Repeated beach DCE: monitoring, disclosure and distance before/after treatment.

3

Do effects show up in behaviour and policy support?

Travel-cost module plus Wave 3 policy referendum: trips, risk reduction, monitoring and cost.

4

How should both information channels enter CBA?

Education campaigns and timely risk-information systems become welfare-relevant adaptation actions.

The policy target is not simply awareness. It is a defensible appraisal of risk education, access to timely risk signals, behaviour and risk reduction.

That is the CBA bridge: information changes welfare-relevant inputs, so both campaigns and risk-information systems should be considered adaptation actions.

Study design: four waves, two populations

Three-wave active-user panel plus a broader-public Wave 4 for policy support, valuation context and heterogeneity.

Wave 1

Spring/Summer 2024
3,312 users

Baseline DCE1 + travel-cost module; recruited from a stratified national screen of 12,254.

Wave 2

Summer 2024
2,588 users

Randomized pathogen information: control, combined script, pathogen-specific script; knowledge quiz and repeated DCE1.

Wave 3

Summer 2025
1,593 users

Policy-referendum DCE2 and repeated travel-cost module; 1,507 in analytic DCE2 sample.

Wave 4

Broader-public extension
1,111 general public

Administered beyond the coastal-user panel to test wider policy support, valuation context and heterogeneity.

W1-W3: causal active-user evidence

W4: broader public and distributional relevance

Identification combines random assignment, within-person repeated choices and panel methods; Wave 4 broadens the policy-appraisal frame.

Randomized information treatments

T0

Control

Minimal pathogen framing; proceeds to knowledge quiz and repeated DCE1.

T1

Combined-pathogen script

Four hazards presented together: E. coli, enterococci, Vibrio spp. and cyanobacteria. Vulnerable groups, exposure pathways, symptoms and prevention guidance.

T2

Pathogen-specific scripts

Separate screens for each hazard, more granular mental model of occurrence, symptoms, vulnerability and prevention.

All arms: knowledge quiz -> repeated DCE1 -> attitudes. Wave 3 uses a common baseline info script for valuation standardization.

Measurement modules: from user choices to public appraisal

The study traces risk education and access to risk information across learning, valuation, behaviour and policy support.

W2 / W3 / W4

Knowledge & beliefs

Objective and subjective knowledge, perceived vulnerability, risk beliefs and policy attitudes.

W1 + W2

DCE1: beach-site choice

Repeated before/after risk education. Attributes include monitoring, disclosure, site safety and distance.

W3 / W4

DCE2: policy referendum

National programme with infection-risk reduction, monitoring / timely risk information frequency and household cost.

W1 + W3

Travel-cost module

Multi-day coastal trips and beach outings; behaviour channel and revealed-preference complement.

CBA chain: education -> knowledge -> valuation of risk reduction and timely information -> behaviour -> welfare

Why combine DCE and travel-cost methods?

Two complementary ways of translating choices into welfare-relevant evidence.

Discrete Choice Experiment (DCE)

Controlled stated choices

Respondents choose between alternatives with different attributes
Identifies preferences and trade-offs: distance, cost, monitoring, risk reduction

In this talk:

Does risk education change site-choice trade-offs and policy WTP?

Travel Cost Method (TCM)

Revealed recreation demand

Observed/reported trips are linked to travel time and money costs
Identifies demand and consumer surplus from recreation
Useful behaviour check, but messier: destinations, zero trips, substitution

In this talk:

Does the information shock show up in realised trip behaviour?

DCE = clean causal preference evidence; TCM = behavioural triangulation

DCE1: beach-site choice

Private recreation margin: would users choose a different site when monitoring improves or distance changes?

Design

Repeated before / after risk education

- Wave 1: baseline beach-choice DCE
- Wave 2: same DCE after randomized pathogen-risk education

- 12 choice tasks in each wave
- Status quo + one or two alternatives
- Distance pivoted around respondent's usual bathing trip

Welfare metric: willingness to travel

Attributes and levels

Attribute	Levels
Designated bathing site	No; designated; designated + lifeguard
Weather information	No; yes (temperature, wind, sea state)
Water-quality monitoring	None; 1 time per month; 2 times per month (once every 2 weeks); 1 time per week; 2 times per week; daily
Distance	−50%, −25%, 0%, +25%, +50%, +100% around usual distance

Interpretation: does risk education make users travel farther for monitoring / timely risk information?

DCE2: water quality and monitoring policy referendum

Public policy margin: would households pay for lower infection risk and more frequent monitoring?

Design

Advisory referendum on a national programme

- Wave 3: about one year after the risk-education treatment
- 12 choice tasks
- Status quo + programme alternatives

Welfare metric: willingness to pay

Attributes and levels

Attribute	Levels
Infection risk after bathing	20, 10, 5 or 2 infections per 1,000 bathing occasions
Monitoring frequency	Monthly; twice/month; weekly; twice/week; daily
Annual household cost	10, 20, 50, 100, 200 or 500 PLN; status quo = 0

DCE1 asks: would I choose this beach?

DCE2 asks: would I support and pay for this policy?

Same risk-education treatment, different welfare metric.

Identification in one slide

The design treats randomized information as an exogenous belief shock.

DCE1: preference difference-in-differences

Same DCE instrument pre/post. T0 absorbs generic panel, seasonal and repetition effects. Treatment effects are T1/T2 shifts relative to T0.

$$\beta_{k,n} = \beta_{k,0} + \gamma_{Post} \cdot Post + \gamma_{T1} \cdot T1 \times Post + \gamma_{T2} \cdot T2 \times Post$$

Read $\gamma T1$ and $\gamma T2$ as causal shifts in mean preferences for attribute k.

TCM: panel count model

Individual fixed effects absorb stable unobserved heterogeneity. Post-period effects capture common shocks. Treatment-by-post terms test demand shifts.

$$E[Trips] = \exp(\alpha_n + \delta_t + \theta \cdot TC + \lambda_T \times Post + controls)$$

A stable θ means information shifts demand level rather than marginal travel-cost sensitivity.

Policy translation: compare informed and less-informed valuations, not just informed and uninformed respondents.

Headline findings

What to remember if you remember nothing else.

1

Risk education causes real learning

Objective and self-rated knowledge rise after exposure to pathogen-risk scripts.

2

Valuation updating is selective

Monitoring / timely risk information and disclosure move most; unrelated attributes move little or inconsistently.

3

Effects extend to policy support and behaviour

Wave 3 policy support changes; trip-count evidence suggests demand-level shifts, with RP welfare still preliminary.

4

Both information roles matter for CBA

Education campaigns and access to timely risk signals can both affect welfare and valuations of adaptation packages.

5

RP and vulnerability analyses remain work in progress

The travel-cost and vulnerability modules are important behaviour, targeting and sensitivity inputs, but should not be oversold as final welfare estimates yet.

Policy punchline

Information is a behavioural adaptation lever because it changes what people know, value and do - exactly the inputs used in appraisal.

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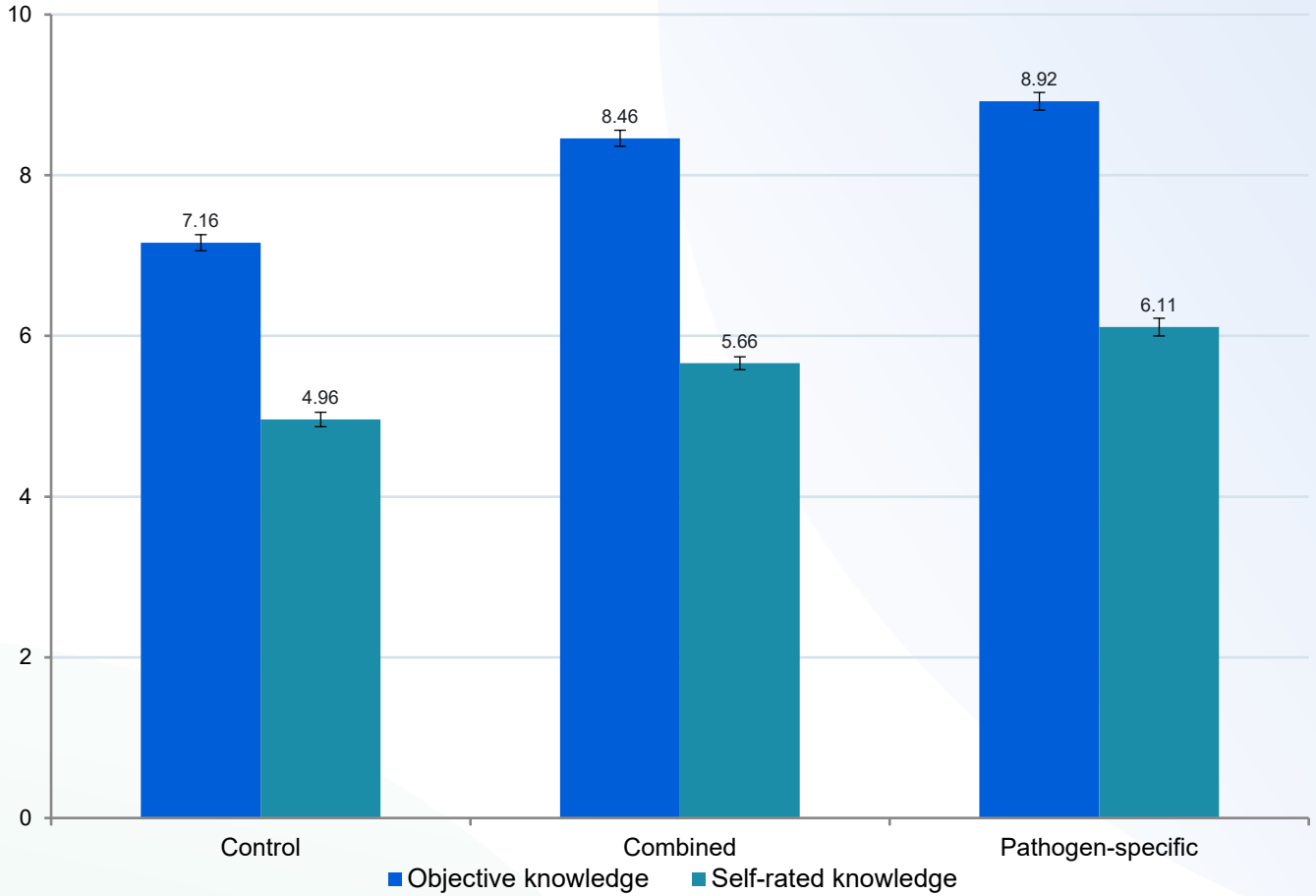
Result 1: respondents actually learned

The scripts produced immediate knowledge gains, especially under granular framing.



What moved?

Both objective knowledge and self-assessed knowledge increased in Wave 2. Self-rated knowledge no longer significantly higher by Wave 3, so long-run effects may need to be interpreted as salience/mental-model effects, not simple memory retention.

+1.76/14

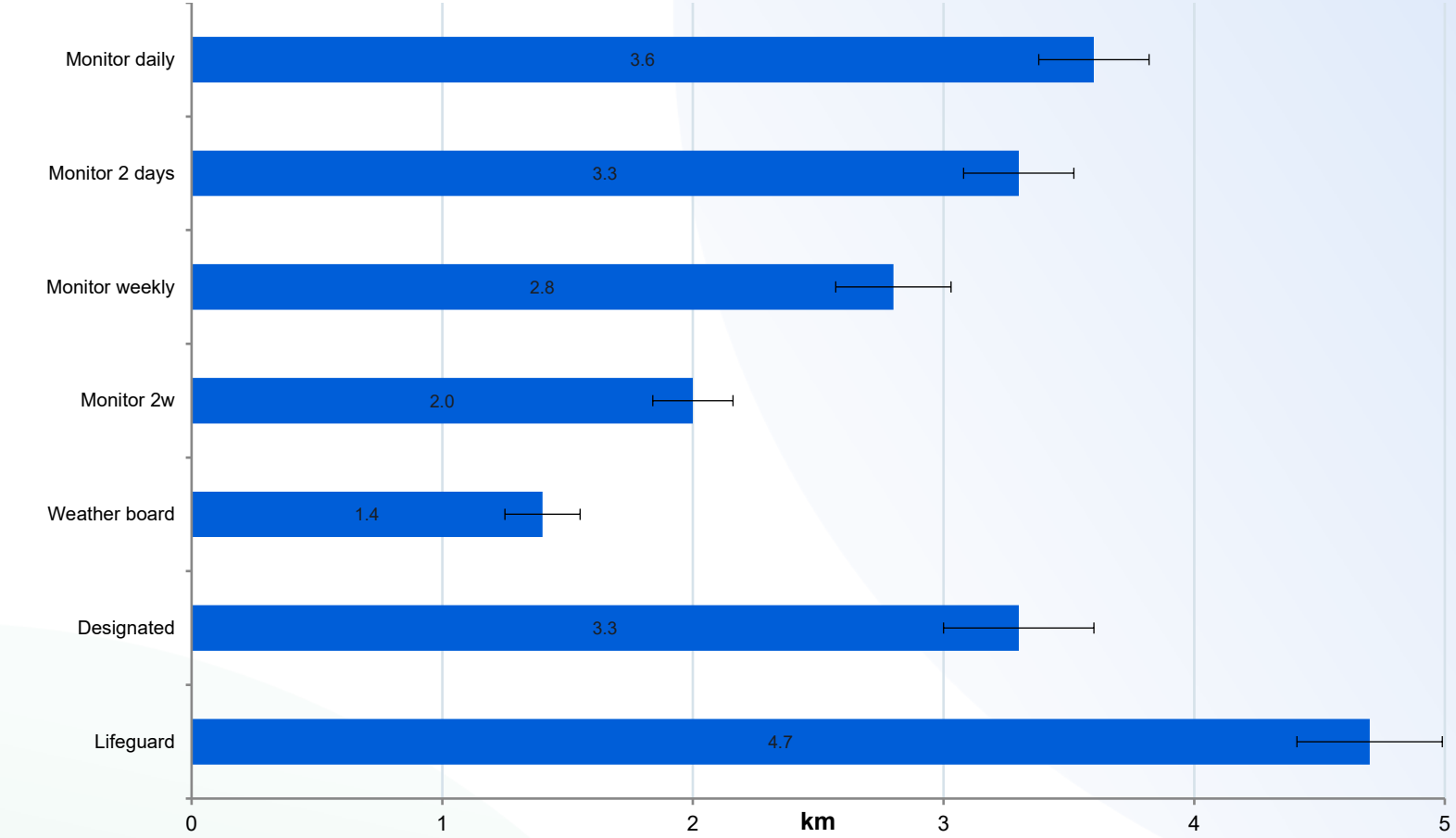
correct answers: T2 vs control

+1.15/10

self-rated points: T2 vs control

Result 2a: before treatment, monitoring already mattered

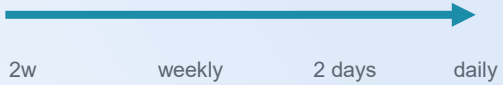
Baseline willingness to travel for beach-site attributes.



Interpretation

Respondents already treat monitoring as a valued site attribute. Daily monitoring is almost as valuable as formal designation, and much more valued than a weather board.

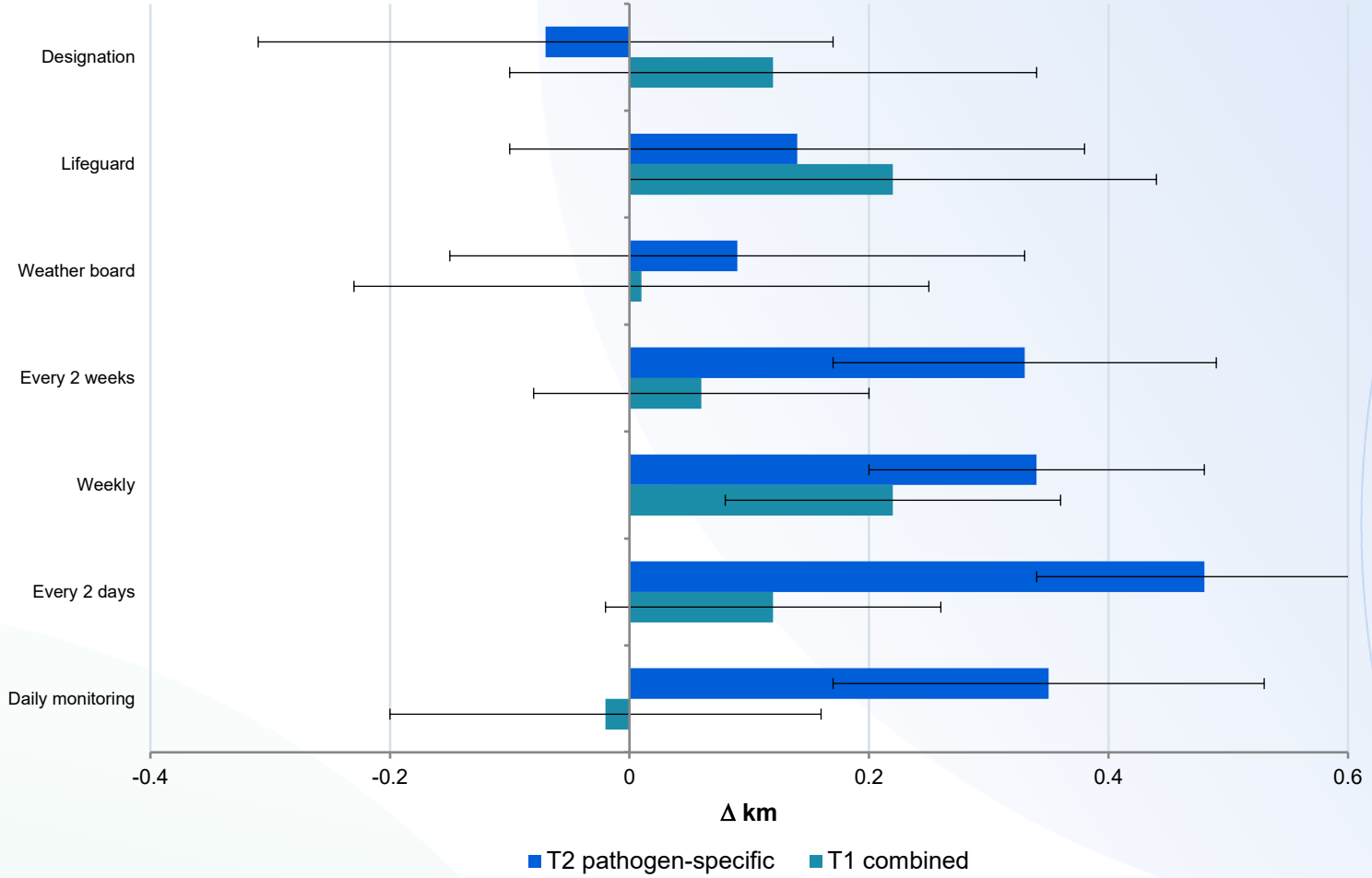
Monitoring frequency displays a monotonic pattern:



This gives policymakers a baseline: information systems have recreational value even before detailed risk communication.

Result 2b: information changes the attributes it should change

Treatment shifts concentrate on water-quality monitoring, not on generic amenities.



Mechanism test

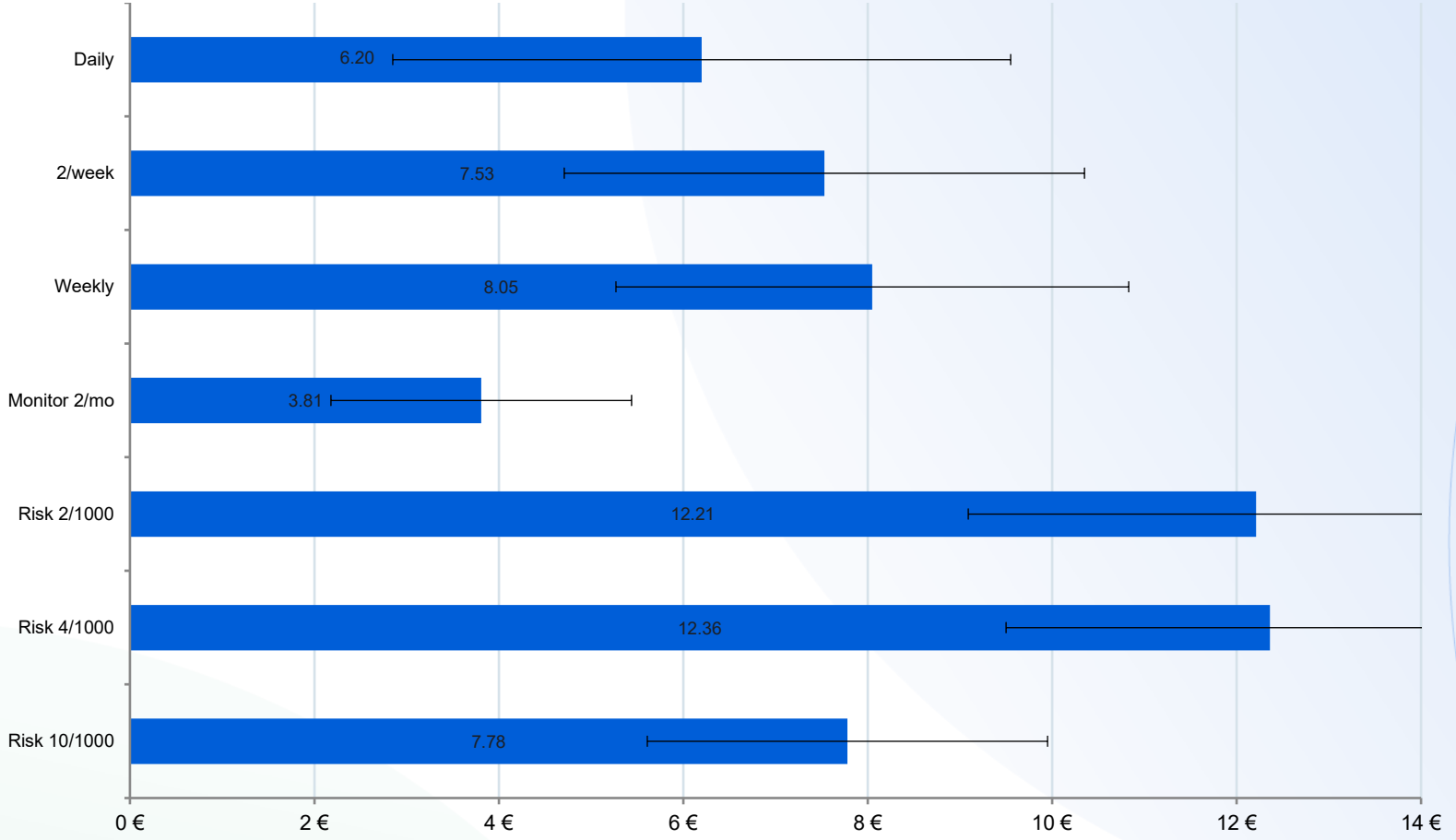
A generic 'be careful' story predicts broad shifts across safety and amenity attributes.
A microbial-risk salience story predicts stronger shifts for monitoring and disclosure.
The observed pattern matches the second mechanism.

Risk-relevant attributes move most.

This is the key behavioural insight: risk education changes how people value timely risk information, especially monitoring and disclosure.

Result 3a: policy support values both risk reduction and monitoring

Wave 3 advisory referendum DCE for a national bathing-water programme.



How to read it

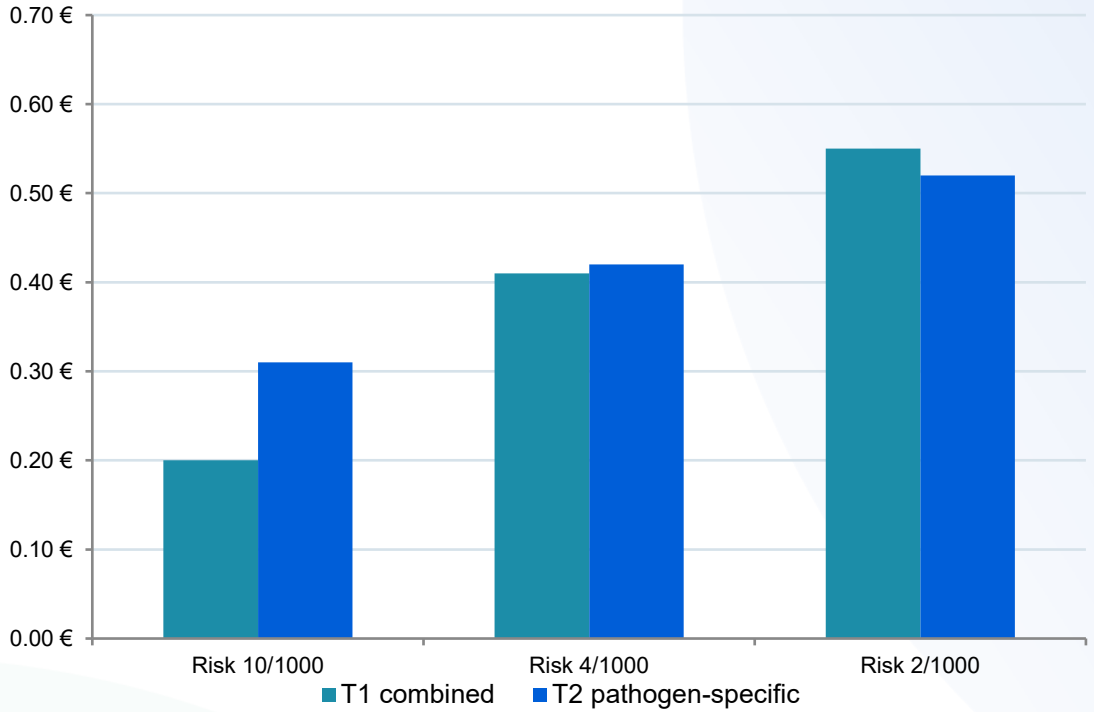
Respondents choose between programme options and status quo. The programme combines lower infection risk (relative to 20/1000), monitoring frequency (relative to 1/mo) and an annual household cost.

Policy interpretation

Risk reduction generates larger WTP than monitoring alone, but monitoring has positive independent value. Very high frequencies are not strictly monotonic, possibly due to credibility or risk-signalling effects.

Result 3b: prior information leaves a one-year fingerprint

Format matters: granular information and combined framing persist through different pathways.



Risk-reduction valuation (treatment interactions)

Monitoring-intensity valuation (treatment interactions)

Granular hazard content strengthens support for risk reduction; combined framing carries over more clearly to monitoring intensity.

Result 4: behaviour evidence is useful - but still work in progress

The travel-cost module captures the behaviour channel, not yet the cleanest welfare result.

What the TC data add

Same individuals report seaside recreation in two periods. This tests whether the information shock is visible in realised trips, not only stated choices.

What makes it hard

Trip construction matters: multi-day trips and beach outings are not the same decision. Travel cost changes little for some respondents, and destination substitution is only partly observed.

What is currently defensible

Information is associated with demand-level shifts in behaviour, while evidence for a changed marginal travel-cost slope is limited.

Selected fixed effects Poisson trip-count model

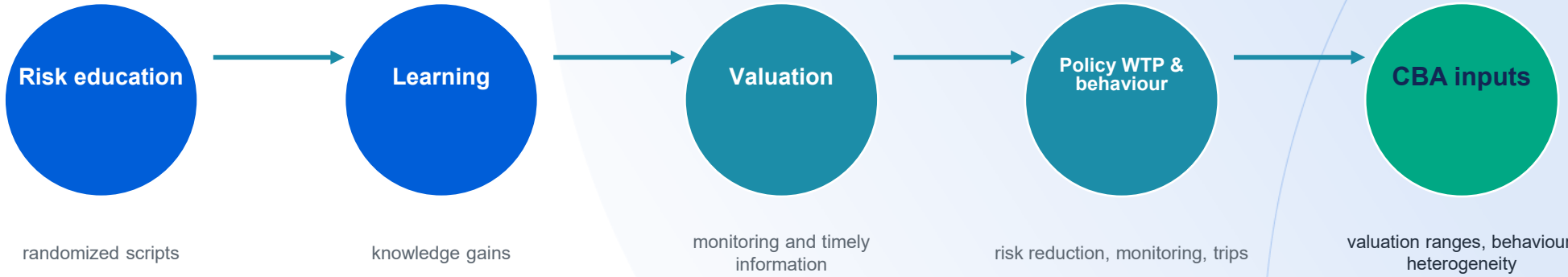
Combined info: +0.145** **Pathogen-specific: -0.335***** **Year 2: -0.282*****

Cost slope: weakly identified in FE; negative in RE/pooled; post interaction small in pooled robustness checks.

Use TC results to support the behaviour channel, not to over-claim final consumer-surplus effects.

Putting stated and revealed evidence together

The evidence is strongest when read as a mechanism chain across the two information roles.



CBA interpretation

Risk education makes microbial risk more salient; timely risk information - monitoring, forecasts and warnings - is valued; and behaviour can change. These are inputs into appraisal of campaigns, monitoring/disclosure, warnings and mitigation.

No over-claiming: we do not observe actual infections, and trip counts alone cannot separate avoidance from substitution.

Limitations and work in progress

The causal DCE evidence is strong; translation to welfare, targeting and implementation needs sensitivity analysis.

Caveat

External validity

One Polish coastal system; transfer depends on institutions and baseline awareness.

Caveat

Attrition

Good long-panel retention, but still requires diagnostics.

Caveat

TCM identification

Trip definitions and weak within-person cost variation make RP welfare preliminary.

Caveat

Vulnerability / heterogeneity

Work in progress: vulnerability may condition learning and valuation.

Caveat

Health endpoints

No observed infections; welfare is preference-based.

Caveat

Policy implementation

Survey scripts are treatments, not ready-made campaigns.

Bottom line: use the DCE evidence as the core causal result; treat RP, vulnerability and CBA as sensitivity-tested extensions.

Information as adaptation: two welfare channels

Information means both education about risks and access to current risk signals.

Channel 1

Risk education

Campaigns and explanations increase knowledge and salience; this can shift preferences, valuation and behaviour.

Channel 2

Timely risk information

Monitoring, disclosure, forecasts and warnings make invisible risk observable; respondents value monitoring frequency.

Welfare channel

Behaviour and appraisal

Site choices, trips, policy support and valuation become CBA inputs; information affects welfare through choices, preferences, wellbeing – but can also be endogenized.

For CBA: model education campaigns and access to timely risk information as adaptation actions, with sensitivity to awareness, uptake and behavioural response.

Interventions this evidence can inform

The Polish panel is one input into BlueAdapt appraisal of education campaigns, timely risk information, warnings and mitigation packages.

CBA input

Risk communication campaigns

Direct evidence: knowledge gains, selective preference updating and behaviour-relevant demand shifts after pathogen-risk education.

CBA input

Monitoring / disclosure systems

Direct evidence: positive valuation of monitoring frequency; risk education changes valuation of access to risk information.

CBA input

Forecasting and warnings

Related BlueAdapt cases inform feasible systems; behavioural uptake, avoidance and substitution should be tested rather than assumed.

CBA input

Mitigation / water-quality improvement

DCE2 estimates WTP for lower infection risk, useful for CBA comparison with information and monitoring actions.

CBA input

Targeting vulnerable groups

Work in progress: heterogeneity by vulnerability, perceived susceptibility and household composition.

The evidence does not say 'information solves the problem'; it says education and timely risk signals change the values and behaviours used to appraise solutions.

And if that's the case – they should be taken into account, potentially also as a policy lever.

Where BlueAdapt can go next

Use the Polish evidence as an input to CBA scenarios, vulnerability analysis and decision-support tools.

1

Finish vulnerability and heterogeneity

Estimate who updates most: vulnerable users, families with children, older adults, health-sensitive users, high-exposure groups.

2

Finalize welfare estimates

Link DCE and TCM evidence; keep RP consumer-surplus estimates sensitivity-tested and transparent.

3

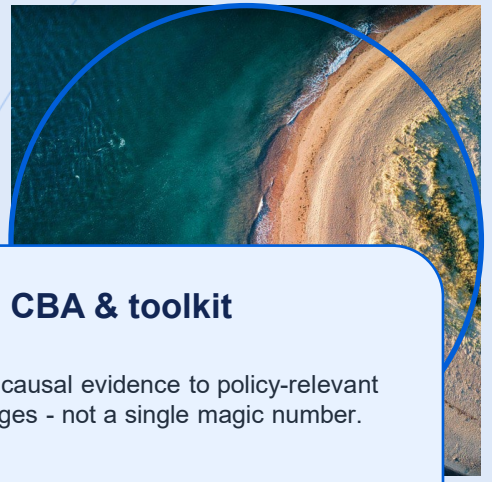
Translate to CBA scenarios

Compare information campaigns, monitoring/disclosure, forecasting/warnings and mitigation packages.

4

Integrate Wave 4 and other cases

Use broader-public evidence, forecasting cases, UK app evidence and One Health pilots to inform feasible interventions.



CBA & toolkit

Bridge from causal evidence to policy-relevant benefit ranges - not a single magic number.

Useful policy appraisal will be scenario-based: benefits, costs, uncertainty and distribution.

Policy takeaways

For agencies appraising information, monitoring and pathogen-risk adaptation programmes.

1. **Distinguish risk education from timely risk information**

   Campaigns change knowledge and salience; monitoring, forecasts and warnings provide current risk signals.

2. **Appraise education campaigns explicitly**

   Estimate costs and benefits of design, targeting, delivery, evaluation and resulting knowledge / behaviour changes.

3. **Value timely risk information directly**

   Monitoring, disclosure, forecasts and warnings can be valued and can guide avoidance or substitution behaviour.

4. **Model behaviour and welfare, not only knowledge or attitudes**

   Site choice, trip demand, avoidance and substitution are welfare channels; but perhaps knowledge is too.

5. **Consider various sources of evidence**

   DCE results are the causal core; TCM and vulnerability analyses are behaviour / targeting extensions and sensitivity checks.

One-sentence conclusion

Information changes what people know, value and do; that is enough to make it part of adaptation appraisal or even a policy lever.

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Thank you

Questions and discussion welcome.

Project: BlueAdapt

Reducing climate-based health risks in blue environments: adapting to climate change impacts on coastal pathogens

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Find out more at www.blueadapt.eu

Co-funded by the European Union
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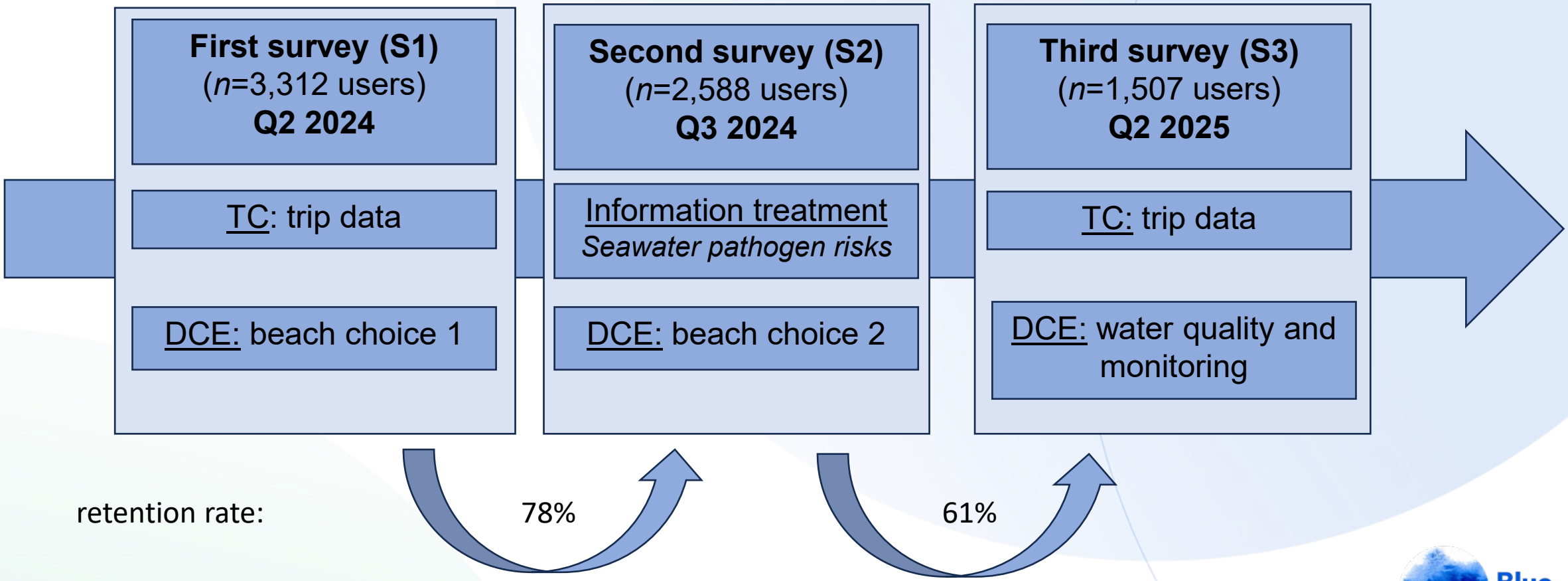
Backup slides

Design details and model notes for discussion

Study Design: Three-Wave Panel



What respondents actually do in a DCE

A DCE makes people choose between alternatives so that trade-offs become observable.

Core idea

Choices reveal trade-offs

Alternatives differ in attributes
Respondents repeatedly choose one option
The design varies attributes systematically
Models recover marginal values and substitution patterns

If people accept more distance (or cost) for better monitoring, monitoring has value.

Example choice task

	Usual site	Alternative A	Alternative B
Designated bathing site	No	Yes	Yes - lifeguarded
Weather board	No	Yes	No
Monitoring	Yes – once every 2 weeks	Yes - once every 1 week	Yes - once every 2 days
Distance	5 km	6.25 km	7.5 km
Your choice:	□	□	□

Backup: DCE1 beach-site attributes

Beach choices pivot around each respondent's usual site.

Attribute	Levels
Designated bathing site	No; designated; designated + lifeguard
Weather information	No; yes (temperature, wind strength, sea state)
Water-quality information	None; every 2 weeks; weekly; every 2 days; daily
Distance	-50%, -25%, 0%, +25%, +50%, +100% around usual distance

Example task logic

Respondents choose between their status quo site and experimentally varied alternatives that trade off monitoring quality against distance.

Usual site | **More monitoring** | **More distance**

Backup: DCE2 policy-referendum attributes

Policy options combine mitigation, adaptation and cost.

Attribute	Levels
Infection risk after bathing	20, 10, 5 or 2 infections per 1,000 bathing occasions
Water monitoring frequency	Monthly; twice per month; weekly; twice per week; daily
Annual household cost	10, 20, 50, 100, 200 or 500 PLN; status quo cost = 0

Advisory referendum framing

Respondents chose between two programme options and the status quo. If they thought neither programme was worth the cost, they could choose the status quo.

Interpretation

DCE2 estimates willingness to pay for lower infection risk and more frequent monitoring, while testing whether prior information exposure affects policy support one year later.

Manipulation Checks – Knowledge & Awareness:

Treatment group:	T0 – Control (no extra info)	T1 – Detailed pathogen-risk (pathogens combined)	T2 – Detailed pathogen-risk (pathogens separately)
Objective knowledge[1] quiz scores	7.16 (3.06)	8.69*** (3.07)	
Objective knowledge – quiz scores	7.16 (3.06)	8.46 (3.00)	8.92*** (3.12)
Subjective knowledge[1] – self-rated (survey 2)	4.96 (2.54)	5.89*** (2.26)	
Subjective knowledge – self-rated (survey 2)	4.96 (2.54)	5.66 (2.33)	6.11*** (2.16)
Subjective knowledge – self-rated (survey 3)	5.30 (2.18)	5.43 (2.20)	
Subjective knowledge – self-rated (survey 3)	5.30 (2.18)	5.41 (2.22)	5.46 (2.18)

Notes: 1 - 14-item quiz scores; 2 - 0-10 Likert + don't know; s.d. in parentheses

=> Treatments worked 👍

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Beach Preferences (DCE 1) – baseline

Attributes	dist.	mean	s.d.
Status quo site	n	0.01*** (0.00)	0.06*** (0.00)
Guarded bathing site	n	0.47*** (0.01)	0.40*** (0.01)
Designated bathing site	n	0.33*** (0.01)	0.27*** (0.01)
Weather information	n	0.14*** (0.01)	0.10*** (0.00)
Water information – 1x/2 weeks (vs. 1x/month)	n	0.20*** (0.01)	0.15*** (0.01)
Water information – 1x/week (vs. 1x/month)	n	0.28*** (0.01)	0.22*** (0.01)
Water information – 1x/2 days (vs. 1x/month)	n	0.33*** (0.01)	0.27*** (0.01)
Water information – 1x/day (vs. 1x/month)	n	0.36*** (0.01)	0.30*** (0.01)
-Distance (in 10 km)	l	2.11*** (0.04)	1.52*** (0.04)

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Beach Preferences (DCE 1) – information effects

Attributes	dist.	mean	wave 2	wave 2 + info	wave 2	wave 2 + info comb.	wave 2 + info sep.
Status quo site	n	0.50*** (0.04)	0.07 (0.08)	-0.02 (0.06)	0.06* (0.03)	0.11 (0.11)	-0.12*** (0.05)
Guarded bathing site	n	2.44*** (0.08)	0.59*** (0.08)	0.20*** (0.06)	0.56*** (0.05)	0.19 (0.13)	0.26*** (0.08)
Designated bathing site	n	1.79*** (0.07)	0.43*** (0.09)	-0.02 (0.07)	0.42*** (0.06)	0.06 (0.09)	-0.02 (0.04)
Weather information	n	0.93*** (0.04)	-0.01 (0.07)	0.10* (0.05)	-0.03 (0.11)	0.04 (0.03)	0.17* (0.09)
Water information – 1x/2 weeks (vs. 1x/month)	n	1.28*** (0.05)	-0.28*** (0.09)	0.24*** (0.06)	-0.28*** (0.07)	-0.05 (0.12)	0.50*** (0.08)
Water information – 1x/week (vs. 1x/month)	n	1.85*** (0.08)	-0.17 (0.13)	0.33*** (0.10)	-0.19*** (0.04)	0.11 (0.15)	0.56*** (0.04)
Water information – 1x/2 days (vs. 1x/month)	n	2.30*** (0.08)	-0.31** (0.14)	0.33*** (0.09)	-0.33*** (0.05)	-0.01 (0.16)	0.68*** (0.05)
Water information – 1x/day (vs. 1x/month)	n	2.51*** (0.08)	-0.40*** (0.14)	0.17* (0.09)	-0.38*** (0.14)	-0.18*** (0.07)	0.53*** (0.05)
-Distance (in 10 km)	l	17.49*** (0.29)	0.53*** (0.10)	0.18* (0.10)	0.06 (0.12)	0.44*** (0.05)	0.40*** (0.05)

Water quality and monitoring preferences (DCE 2) – baseline (WTP-space, in EUR)

Attributes	dist.	mean	s.d.
Status quo	n	1.23 (1.27)	32.33*** (1.60)
Water quality – risk 10/1000 (vs. 20/1000)	n	7.78*** (0.75)	12.96*** (0.97)
Water quality – risk 4/1000 (vs. 20/1000)	n	12.36*** (0.95)	19.35*** (1.20)
Water quality – risk 2/1000 (vs. 20/1000)	n	12.21*** (1.10)	26.74*** (1.57)
Monitoring: 2x/1 month (vs. 1x/month)	n	3.81*** (0.72)	6.00*** (1.10)
Monitoring: 1x/week (vs. 1x/month)	n	8.05*** (0.75)	6.21*** (1.07)
Monitoring: 2x/week (vs. 1x/month)	n	7.53*** (0.79)	9.65*** (1.17)
Monitoring: 1x/day (vs. 1x/month)	n	6.20*** (0.99)	15.84*** (1.46)
-Cost (EUR)	l	0.16*** (0.01)	0.12*** (0.01)

Water quality and monitoring preferences (DCE 2) – information effects

Attributes	dist.	mean	info	info comb.	info sep.
Status quo	n	2.33 (1.75)	-1.86 (2.25)	-0.85 (2.56)	-3.12 (2.66)
Water quality – risk 10/1000 (vs. 20/1000)	n	6.49*** (1.08)	2.47* (1.32)	1.85 (1.55)	3.14** (1.57)
Water quality – risk 4/1000 (vs. 20/1000)	n	10.03*** (1.37)	3.87** (1.71)	3.31 (2.02)	4.55** (2.03)
Water quality – risk 2/1000 (vs. 20/1000)	n	8.95*** (1.62)	5.72*** (2.05)	5.49** (2.38)	6.05** (2.46)
Monitoring: 2x/1 month (vs. 1x/month)	n	4.64*** (1.05)	-1.50 (1.20)	-1.17 (1.41)	-1.73 (1.39)
Monitoring: 1x/week (vs. 1x/month)	n	7.57*** (1.06)	0.91 (1.19)	1.88 (1.40)	0.02 (1.41)
Monitoring: 2x/week (vs. 1x/month)	n	6.96*** (1.11)	1.06 (1.27)	2.17 (1.51)	0.05 (1.50)
Monitoring: 1x/day (vs. 1x/month)	n	4.54*** (1.44)	2.89* (1.64)	2.91 (1.92)	3.05 (1.93)
-Cost (EUR)	l	0.15*** (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)

Blue Adapt