
| RESEARCH ARTICLE

Verified ACTION PACKET: A Framework for Accountable Decision Support and Communication in Digital Public Health Systems

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| ABSTRACT

Public health decisions and their communication increasingly unfold across websites, dashboards, messaging systems, social media, and partner platforms. Across these channels, the evidence, recommendations, and messages supporting a decision must remain synchronized, traceable, accessible, and correctable through repeated revisions. Existing guidance largely evaluates decisions or messages at a single point in time and offers limited support for governing the full pathway from evidence and decision rationale to dissemination, revision, correction, and retirement. When evidence or guidance changes, decision rationales may become difficult to reconstruct, outdated versions persist, corrections fail to propagate, and provenance is lost. This study specifies the Verified ACTION PACKET Framework, a two-layer methodological framework for governing the last mile of public health decision support and communication from provenance through retirement, and presents an evidence-matched validation agenda. Developed through a design-oriented narrative synthesis and retrospective design audit, the framework draws on sources across eleven evidence domains and was positioned against a scoping review of 39 public health frameworks and an overview of 36 systematic reviews informing WHO-INTEGRATE. Recurring challenges in translating evidence into decisions and communications were converted into observable challenge-control pairs and organized as release-quality criteria, procedural governance controls, workflow phases, lifecycle states, and measures. Components were retained when they were consequential, conceptually distinct, assignable, observable, locally feasible, proportionate to risk, and empirically testable. The framework comprises a decision-and-communication governance layer and an implementation layer linked by a persistent, versioned ACTION PACKET. Six ACTION release-quality domains assess whether a communication product and its underlying decision basis are ready for release, while six dependency-ordered PACKET phases govern their development, approval, publication, monitoring, revision, correction, and retirement. Mnemonic labels were applied only after construct boundaries, required outputs, responsible roles, decision points, and evaluation targets had been specified. The result is a bounded, auditable specification for supporting public health decisions and governing their communication from provenance through retirement, while enabling local, multilingual, accessible, and correctable implementation. As a provisional architecture, it now advances to multidisciplinary and community appraisal, usability and inter-rater testing, feasibility implementation, and comparative evaluation of decision quality, communication effectiveness, and scale-up.

| KEYWORDS

Digital public health systems; public health communication; digital health governance; implementation science; organizational health literacy; multilingual communication;

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Contribution and stage of development

The Verified ACTION PACKET framework specifies a persistent, versioned communication object linking six ACTION governance domains with six PACKET implementation phases (component lineage and evidence anchors in Tables 2A and 2B). It is positioned as an internally specified pre-implementation framework with a staged validation agenda. “Verified” denotes structured internal verification of the framework’s components and their alignment with existing evidence; it does not denote empirical validation or demonstrated effectiveness.

1. Introduction

Public health systems detect emerging hazards, service gaps, and prevention needs through surveillance, laboratory reporting, environmental monitoring, program dashboards, health care data, and community reports. Detection does not itself produce protection. Guidance must still be converted into communication that a defined population can receive, understand, trust, and use within a particular jurisdiction and time window.

That conversion is a distributed implementation process rather than a single writing or translation task. It requires designation of the authoritative source, confirmation of the target population and jurisdiction, preservation of uncertainty and qualifying conditions, selection of a feasible action, verification of any local service on which the action depends, language and accessibility adaptation, authorization, partner routing, correction of superseded versions, and evaluation. When these functions are divided across programs, communications teams, vendors, emergency operations, and community partners without a shared object and lifecycle, technically accurate information can remain unusable or obsolete.

COVID-19 exposed persistent inequities in preferred-language communication. State and local websites frequently lacked complete or equivalent translated information, and reviews identified recurrent problems in reach, cultural fit, altered meaning, and delayed updates (Ortega et al., 2020; Tensmeyer et al., 2022; Kusters et al., 2023; Findling et al., 2023; Rubio et al., 2023). These failures are not limited to emergencies. Routine vaccination, screening, environmental health, and service-navigation messages can also fail when eligibility, cost, transport, disability access, or local capacity is omitted.

Current guidance provides essential foundations. The CDC Clear Communication Index supports clear and actionable materials; organizational health literacy assigns responsibility to institutions; WHO communication principles emphasize accessibility, actionability, credibility, relevance, timeliness, and understandability; the WHO Communication for Health planning guide provides an intervention cycle; equity-centered principles emphasize context, respectful language, inclusive images, and collaboration; and emergency risk communication and alerting standards address coordination, trust, identifiers, effective times, updates, and cancellation (Baur & Prue, 2014; Brach et al., 2012; Calanan et al., 2023; CDC, 2019, 2024, 2025; Jha et al., 2018; OASIS, 2010; WHO, 2018, 2026, n.d.). Framework scholarship and public health framework reviews additionally show that credible frameworks should disclose their development logic, intended function, construct relationships, context, ethics, implementation, evaluation, and maintenance rather than rely on a memorable diagram alone (Muellmann et al., 2026; Partelow, 2023; Stratil et al., 2020). These resources remain broader or narrower than the specific source-to-retirement governance problem addressed here.

Digital public health extends beyond the use of digital communication channels. It concerns how digital systems, data, governance arrangements, and technologies support population health functions while protecting equity, accessibility, privacy, and accountability. The source-to-retirement problem addressed by the Verified ACTION PACKET is therefore a digital public health governance problem whenever communication products are created, adapted, distributed, monitored, or corrected through interconnected digital systems.

This article presents the Verified ACTION PACKET Framework as an action-oriented, integrative specification and staged validation agenda. Its bounded novelty is not another message-writing checklist. It is the use of one persistent, versioned communication object to link the authorized recommendation, intended population, jurisdiction, action, local feasibility, renderings, approvals, distribution, correction, and retirement history. The framework separates four questions: what object is governed; what release-quality and accountability conditions apply; how work proceeds through implementation; and what evidence is required before claims about fidelity, feasibility, equity, effectiveness, or scale are justified.

2. Literature Review

2.1 The last-mile implementation gap

A recommendation produces public health benefit only when people can perform the recommended action. Between an agency decision and community action lies a chain of dependencies: the guidance must be current, authorized, relevant to the applicable jurisdiction, understandable in the intended language and format, delivered through a usable and trusted channel, linked to sufficient local support when required, and corrected when guidance or service conditions change. Failure at any point can break the chain.

Most agencies organize communication as webpages, alerts, campaigns, flyers, social posts, press releases, or vendor deliverables. These products are necessary, but they do not always function as stable implementation units. A webpage may be updated while screenshots, partner PDFs, radio scripts, printed materials, and translations remain in circulation. A campaign may

contain several messages with different sources, validity periods, and correction needs. The proposed packet is intended to provide a bounded unit that can be versioned, authorized, distributed, corrected, retired, and evaluated

2.2 Communication quality, equity, and action feasibility

Communication quality is multidimensional. A message may be grammatically correct but fail to preserve directive force, uncertainty, agency, or eligibility. Functional translation approaches emphasize purpose, audience, register, context, and communicative performance rather than sentence-level similarity (Halliday & Matthiessen, 2014; House, 2015; Colina et al., 2017). Each language and format rendering therefore requires independent review against the authorized action core.

Equity requires more than translation availability. CDC's equity-centered principles call for contextualizing inequities, avoiding stigmatizing language and imagery, considering intersectionality, and collaborating with intended audiences (Calanan et al., 2023). Organizational health literacy similarly shifts responsibility from individual comprehension deficits toward institutional design. The framework therefore treats language, disability access, offline access, practical barriers, channel use, and trusted messengers as release considerations rather than optional enhancements.

Comprehension is necessary but insufficient. People may understand a recommendation yet remain unable to act because of cost, transport, work schedules, documentation requirements, stigma, legal concerns, inaccessible facilities, or unavailable services. When an action depends on a local resource, the packet records its hours, cost, eligibility, capacity, language access, disability access, transport, identification requirements, and contingency plan as applicable. When no external support is needed, the record documents why support linkage is not applicable

2.3 Accountability, correction, and fit for purpose

Source verification, publication authorization, communicative quality, delivery, and evaluation answer different questions. A factual reviewer may establish concordance with guidance without holding authority to release the message. A language reviewer may establish functional equivalence without validating service capacity. A distribution partner may reach an audience without establishing that the message remains current. Collapsing these functions into a single label such as 'approved' obscures accountability.

The design adopts five methodological lessons. First, the V3 model demonstrates that verification, analytical validation, and clinical validation answer distinct questions and should not be compressed into one declaration (Goldsack et al., 2020). Second, IMPACT and other action-oriented frameworks show the value of sequential phases with explicit outputs, feedback to earlier phases, evaluation, and sustainability (Adams et al., 2025; CDC, 1999; Chinman et al., 2001; Hoddinott et al., 2010). Third, framework scholarship emphasizes transparent positioning, component relationships, application guidance, and comparative value (Partelow, 2023). Fourth, public health framework reviews show that development, implementation, evaluation, dissemination, organizational conditions, ethics, and context must be considered together (Longworth et al., 2024; McCrabb et al., 2020; Milat & Li, 2017; Moullin et al., 2015; Muellmann et al., 2026). Fifth, WHO-INTEGRATE development demonstrates the value of combining normative top-level criteria with inductively organized subcriteria and of distinguishing substantive criteria, procedural fairness, and evidence appraisal (Rehfuess et al., 2019; Stratil et al., 2020). These sources are methodological exemplars and comparators; they are not substitutes for public health communication standards.

Correction is a distinct implementation and safety function. Correction requires a trigger, an affected-version assessment, channel-specific follow-up, an accountable decision owner, and evidence of reasonable corrective effort. Complete recall is often impossible for printed, forwarded, oral, and screenshot-based content. The appropriate governance claim is therefore traceable corrective action, not guaranteed removal of every copy.

2.4 Framework landscape and implications for VAP

Muellmann et al. (2026) identified 39 frameworks for developing and evaluating public health interventions and grouped their criteria into four lifecycle themes - development, implementation, evaluation, and dissemination and sustainability - and three cross-cutting themes - organizational aspects, ethics, and context. The frameworks ranged from two to eleven criteria and from no subcriteria to 63 subcriteria. Fourteen publications reported no framework-development process, demonstrating that publication does not itself establish transparent derivation. The review therefore provides a useful coverage map and caution: a new framework should state its function, development method, boundaries, and evidence status explicitly.

The 39-framework landscape included general evaluation and quality frameworks (CDC, 1999; Green, 1986; McLees et al., 2015; Thurston et al., 2003), planning and implementation frameworks (Chinman et al., 2001; Hoddinott et al., 2010; Noar, 2012; Poland et al., 2009; Wagemakers et al., 2010; Wienert & Zeeb, 2021), process and policy evaluation approaches (Baranowski & Stables, 2000; Klepac Pogrmilovic et al., 2019; Leeman et al., 2012; Saunders et al., 2005; van Weert et al., 2011; Wolfenstetter, 2011), and frameworks centered on context, culture, equity, or ethics (Akrami et al., 2018; Eslava-Schmalbach et al., 2019; Gopichandran & Indira Krishna, 2013; Huff et al., 2015; Pfadenhauer et al., 2017; Zadey et al., 2021). It also highlighted adaptation, dissemination, and scaling as distinct concerns (D'Lima et al., 2021; Escoffery et al., 2019; Kothari et al., 2024; WHO, 2010). VAP uses these categories as a revision-stage completeness check rather than claiming descent from any single framework.

Stratil et al. (2020), drawing on 36 systematic reviews, organized 200 decision aspects into 45 subcriteria and eight higher-order categories: benefits and harms; human and individual rights; acceptability; societal considerations; equity, equality, and fairness; cost and financial considerations; feasibility and health-system considerations; and evidence. The final WHO-INTEGRATE framework further embeds these considerations in a complexity- and values-informed evidence-to-decision process (Rehfuess et

al., 2019). For VAP, this work supports three design decisions: evidence quality and applicability must be assessed across domains; rights, equity, cost, acceptability, and feasibility cannot be reduced to message readability; and procedural accountability must remain distinguishable from substantive communication quality.

Taken together, the two reviews imply that VAP should not be presented as an all-purpose public health intervention framework. Its narrower contribution is an object-level governance specification for community-facing communication. It must nevertheless show coverage of the intervention lifecycle, organizational roles, ethics, context, evidence, feasibility, dissemination, correction, and learning. The revised architecture and component lineage below make those relationships explicit.

3. Methodology

3.1 Design purpose, conceptual position, unit of analysis, and intended users

The design question was: What governed communication object, core release-quality domains, implementation phases, and risk-proportionate controls could convert approved public health guidance into a local, time-bounded, multilingual, accessible, correctable, and evaluable communication product? The framework is positioned as an action-oriented, integrative specification. Its development relied primarily on theoretical fitting and design synthesis across established communication, equity, accessibility, implementation, translation, alerting, and governance sources rather than on empirical generalization from field implementation (Partelow, 2023). The unit of analysis is a community-facing public health communication object, not a clinical order, surveillance record, patient-specific recommendation, whole campaign, or emergency operations plan. Intended users include public health program leads, subject-matter experts, communication and language teams, accessibility reviewers, emergency communicators, community partners, publication authorities, records or governance personnel, and evaluators.

3.2 Source identification and transparent limitations

The initial framework was developed through a design-oriented narrative synthesis. Sources were identified iteratively through targeted searches of bibliographic databases and authoritative organizational websites, citation chaining, and review of established standards and frameworks. During the present revision, the retained control set and architecture were additionally triangulated against the 39-framework scoping review by Muellmann et al. (2026), the WHO-INTEGRATE criteria overview by Stratil et al. (2020), and the final WHO-INTEGRATE framework (Rehfuess et al., 2019). The retained source set spans the eleven evidence domains listed in Table 1. Selection favored sources that documented recurrent operational failures, specified actionable requirements, defined recognized communication or governance practices, or provided methods for framework development, implementation, appraisal, adaptation, correction, and scale.

The original development process did not preserve reproducible search strings, duplicate screening, a complete screening count, or formal evidence grading. During revision, a retrospective design audit organized each retained source by evidence domain, extracted requirement, failure prevented or detected, candidate component, primary conceptual home, and decision status. The audit also compared coverage against the seven themes identified across 39 public health frameworks and the substantive, procedural, and evidence distinctions in WHO-INTEGRATE (Muellmann et al., 2026; Rehfuess et al., 2019; Stratil et al., 2020). This reconstruction improves traceability but does not convert the work into a systematic review. Reporting was informed by GUIDED and framework-development scholarship (Duncan et al., 2020; Partelow, 2023; Tricco et al., 2018).

Table 1. Evidence domains used in the retrospective framework-development audit

Evidence domain	Extracted design requirements	Representative sources
Public health communication and health literacy	Main message, actionability, risk explanation, plain language, organizational responsibility, audience testing, and usable instructions.	Baur & Prue, 2014; Brach et al., 2012; CDC, 2019, 2025; Noar, 2012; WHO, n.d.
Equity, ethics, and rights	Contextual framing, non-discrimination, autonomy, privacy, inclusive language and images, intersectionality, distribution of burdens, and collaboration with intended audiences.	Akrami et al., 2018; Calanan et al., 2023; Eslava-Schmalbach et al., 2019; Gopichandran & Indira Krishna, 2013; Rehfuess et al., 2019; Stratil et al., 2020; Zadey et al., 2021
Communication planning and participatory development	Audience understanding, problem definition, planning, co-design, iterative development, testing, implementation, evaluation, and learning.	Adams et al., 2025; Aronson et al., 2022; CDC, 1999; Chinman et al., 2001; Hoddinott et al., 2010; WHO, 2026; Wilson et al., 2011

Evidence domain	Extracted design requirements	Representative sources
Multilingual communication and translation quality	Functional equivalence, qualified review, language variety, synchronization, communicative purpose, and limitations of literal translation.	Colina et al., 2017; Halliday & Matthiessen, 2014; House, 2015; ISO, 2015
Emergency risk communication and alerting	Trust, coordination, timeliness, uncertainty, identifiers, geographic targeting, validity, updates, cancellation, partner routing, and safety holds.	CDC, 2024; Jha et al., 2018; Khan et al., 2018; OASIS, 2010; WHO, 2018
Accessibility and channel usability	Testable web accessibility plus adaptation to print, audio, SMS, call-center, partner, device, and offline formats.	Baur & Prue, 2014; CDC, 2019; W3C, 2024; WHO, n.d.
Implementation science, evaluation, and maintenance	Context, determinants, fidelity, feasibility, acceptability, adoption, reach, process evaluation, maintenance, and implementation outcomes.	Baranowski & Stables, 2000; Damschroder et al., 2009, 2022; Glasgow & Emmons, 2007; Glasgow et al., 1999, 2019; Proctor et al., 2011; Saunders et al., 2005
Framework development, comparison, and adaptation	Separation of constructs and phases, sequential outputs, transparent development reporting, comparison with existing frameworks, adaptation, and scaling.	Duncan et al., 2020; Escoffery et al., 2019; Kothari et al., 2024; Longworth et al., 2024; McCrabb et al., 2020; Milat & Li, 2017; Muellmann et al., 2026; Partelow, 2023; Skivington et al., 2021
Public health decision governance and evidence appraisal	Normative and technical criteria, evidence quality and applicability, procedural fairness, authorization, role separation, and transparent decision records.	Daniels, 2000; Goldsack et al., 2020; Kristensen et al., 2017; Lampe et al., 2009; Rehfuess et al., 2019; Rychetnik et al., 2002; Shekelle et al., 2013; Stratil et al., 2020
Dissemination, misinformation, feedback, and correction	Audience-channel fit, network readiness, information-ecosystem effects, distribution evidence, feedback routes, correction reach, supersession, and residual circulation.	CDC, 1999, 2024; D'Lima et al., 2021; Ishizumi et al., 2024; OASIS, 2010; Wagemakers et al., 2010; WHO, 2018
Public health communication workforce and organizational accountability	Community-centered communication, trust, two-way communication, defined roles, collaboration, professional competence, and accountable use of evidence.	McWhirter et al., 2025; Moullin et al., 2015; Vanderkruik & McPherson, 2017; Wagemakers et al., 2010

3.3 Requirement extraction and retention criteria

Findings and normative requirements were rewritten as observable control statements. Examples included recording an authoritative source and version, specifying a prioritized action, verifying local support, preserving directive force and uncertainty, synchronizing language variants, defining release authority, recording channel distribution, and establishing correction routes. Each statement was paired with the failure it was intended to prevent or detect.

A candidate component was retained when it met seven criteria: (1) consequentiality, meaning that omission could plausibly reduce access, produce inappropriate action, obscure accountability, or impede correction; (2) conceptual distinctness; (3) assignability to a named role; (4) observability in a record or decision; (5) feasibility within a bounded local pilot; (6) risk proportionality; and (7) evaluability. Redundant requirements were merged. Controls needed only for higher-risk scenarios were assigned to risk-tier implementation rather than the universal minimum.

3.4 Construct generation, naming, and retrospective design audit

Requirements were first separated by level: (1) the governed object; (2) substantive release-quality criteria; (3) procedural governance controls; (4) workflow phases; (5) lifecycle states; and (6) evaluation measures. They were then grouped by the primary question answered and by the failure they were intended to prevent. Requirements that asked what must be true of a releasable communication formed the communication-governance layer; requirements that described dependency-ordered work formed the implementation layer. Evidence, ethics, equity, context, and feasibility were used as cross-cutting tests during clustering rather than counted automatically as additional mnemonic components (Muellmann et al., 2026; Rehfuess et al., 2019; Stratil et al., 2020).

Constructs were internally finalized through four boundary tests: conceptual distinctness; one primary output; an identifiable accountable role or decision owner; and a separate evaluation target. Synonyms and overlapping requirements were merged, while controls that changed authority, handoff, or evidence requirements were kept separate. The number six was not selected in advance. ACTION and PACKET were applied as labels only after six stable governance clusters and six stable workflow handoffs remained. Finalized therefore means specified for external appraisal in this manuscript; it does not mean consensus validated. Tables 2A and 2B provide the component lineage and principal evidence anchors.

3.4.1 Finalization of the six ACTION domains

ACTION was derived from release-quality and accountability requirements, not from the workflow sequence. A candidate domain was retained only when it answered a distinct verification question, produced a distinct record or decision, and could fail independently. For example, an accurate source does not establish audience access; an accessible rendering does not establish cultural fit; a correct translation does not establish publication authority; and broad dissemination does not establish correction capability. These separations are consistent with fit-for-purpose validation, organizational health literacy, communication-quality frameworks, emergency alerting, and evidence-to-decision work (Brach et al., 2012; Goldsack et al., 2020; Noar, 2012; OASIS, 2010; Rehfuess et al., 2019; Stratil et al., 2020).

The six-domain solution was the smallest grouping that preserved all distinct outputs without forcing one reviewer or one score to answer incompatible questions. Equity and rights were not omitted: they operate as cross-cutting release tests and are operationalized principally in Audience and access, Context and cultural fit, calibrated risk, privacy-aware distribution, and documented exceptions. Evidence certainty and applicability are assessed across domains and recorded principally under Oversight. Correction was not made a seventh ACTION domain because its release readiness, network routing, and post-release performance share the same distribution and feedback infrastructure; correction severity remains a separate governance structure.

Table 2A. Derivation and evidence anchors for the six ACTION domains

Domain	Distinct verification question	Core included controls	Boundary and reason retained	Principal evidence anchors
A - Audience and access	Who must receive and use the information, and under what access conditions?	Population, jurisdiction, language or variety, literacy, disability, device, offline access, timing, non-discrimination.	Kept separate from cultural fit because access can fail even when content is culturally appropriate; output is an audience and access profile.	Brach et al., 2012; Calanan et al., 2023; CDC, 2019; Findling et al., 2023; Kusters et al., 2023; W3C, 2024
C - Context and cultural fit	Will the communication make sense and remain feasible in the local social and service context?	Practical barriers, cost, transport, documentation, stigma, history, norms, images, forms of address, trusted messengers, acceptability.	Kept separate from access and wording because contextual burden and feasibility require community and operational judgment; output is a context and feasibility appraisal.	Akrami et al., 2018; Aronson et al., 2022; Eslava-Schmalbach et al., 2019; Huff et al., 2015; Pfadenhauer et al., 2017; Stratil et al., 2020
T - Terminology, tone, and calibrated	Does every rendering preserve the authorized action, risk, uncertainty,	Terminology, agency, directive force, negation, probability, uncertainty, conditions, escalation, non-stigmatizing tone.	Kept separate from information design because semantic fidelity can fail in an otherwise attractive and usable	CDC, 2024; Colina et al., 2017; Halliday & Matthiessen, 2014; House, 2015; ISO, 2015; Jha et al., 2018;

Domain	Distinct verification question	Core included controls	Boundary and reason retained	Principal evidence anchors
risk	urgency, and exceptions?		layout; output is a reviewed language and risk record.	WHO, 2018
I - Information design and actionability	Can the intended audience identify what to do, when, where, and how?	Main-message prominence, instruction sequence, explanation of numbers, usable support details, channel-specific usability.	Kept separate from terminology because correct wording may still hide the action or overload the user; output is an actionable rendering set.	Baur & Prue, 2014; CDC, 2019, 2025; Noar, 2012; WHO, n.d.
O - Oversight, provenance, and version control	Can source authority, evidence limits, validity, review, authorization, changes, and supersession be reconstructed?	Source and version, evidence applicability, reviewers, publication authority, exceptions, role consolidation, lifecycle, synchronization, retirement.	Kept separate from content quality because factual review and release authority are different decisions; output is an approval and version record.	CDC, 1999; Daniels, 2000; Goldsack et al., 2020; Kristensen et al., 2017; Lampe et al., 2009; OASIS, 2010; Rehfuess et al., 2019; Rychetnik et al., 2002
N - Networked dissemination, feedback, and correction	Can the packet reach the intended population and be corrected through the channels actually used?	Audience-channel fit, partner readiness, distribution evidence, feedback route, correction contact, acknowledgment, residual reach.	Kept separate from information design and oversight because network performance occurs across organizations after authorization; output is a distribution and correction plan.	CDC, 1999, 2024; D'Lima et al., 2021; Ishizumi et al., 2024; OASIS, 2010; Wagemakers et al., 2010; WHO, 2018

3.4.2 Finalization of the six PACKET phases

PACKET was derived independently from workflow dependencies. The ordering rule was that a phase should not begin until the minimum output of the preceding phase exists, although later feedback may return the packet to the earliest affected phase. The sequence therefore begins with a defined issue and audience, authenticates the authoritative action before resources are spent on renderings, separates construction from authorization, records distribution as implementation evidence, and retains a post-release loop for monitoring, correction, retirement, and learning. This logic is compatible with public health evaluation, knowledge-to-action, implementation, process-evaluation, and communication-planning frameworks while remaining narrower than any of them (CDC, 1999; Chinman et al., 2001; Glasgow et al., 1999, 2019; Proctor et al., 2011; Saunders et al., 2005; WHO, 2026; Wilson et al., 2011).

Two separations are central. Authenticate is distinct from Keep Accountable because confirming what the authoritative recommendation permits is not the same as authorizing a local rendering for release. Construct is distinct from Keep Accountable because authors and translators should not self-certify all release conditions. Track, Correct, and Learn combines three post-release verbs because they use the same monitored evidence loop: a change or error is detected, affected versions and channels are assessed, corrective action is authorized and executed, and the result informs the next packet version. Splitting these into separate phases added handoffs without producing independent activation criteria or outputs.

Table 2B. Derivation and evidence anchors for the six PACKET phases

Phase	Dependency logic	Required output	Why it remains separate	Principal evidence anchors
P - Pinpoint	Activation starts by defining the problem, audience, jurisdiction, decision window, urgency, and provisional risk.	Issue record and activation decision.	Without a bounded issue and population, later evidence, content, and channels cannot be judged for relevance.	CDC, 1999; Chinman et al., 2001; Green, 1986; Noar, 2012; WHO, 2026
A - Authenticate	The authorized recommendation, evidence limits, applicable population, validity, and required local support are confirmed before drafting.	Authenticated action core.	Separated from authorization: this phase establishes what may be communicated, not whether a local product may be released.	Goldsack et al., 2020; Rehfuess et al., 2019; Rychetnik et al., 2002; Shekelle et al., 2013; Stratil et al., 2020
C - Construct	Only after authentication are plain-language, multilingual, accessible, culturally appropriate, channel-specific renderings produced and synchronized.	Synchronized candidate renderings.	Separated from release authority to preserve independent review and make translation/accessibility work auditable.	Aronson et al., 2022; Baur & Prue, 2014; Colina et al., 2017; Hoddinott et al., 2010; ISO, 2015; Noar, 2012; W3C, 2024
K - Keep Accountable	Before release and after material revision, ACTION criteria, authority, exceptions, validity, and correction routes are resolved.	Verified release-ready packet or documented withholding.	A distinct gate prevents factual, language, design, and operational contributors from being treated as the publication authority by default.	CDC, 1999; Daniels, 2000; Goldsack et al., 2020; Gopichandran & Indira Krishna, 2013; OASIS, 2010; Rehfuess et al., 2019
E - Execute	The authorized packet is released through prepared, audience-relevant channels during its validity period, with distribution evidence and a monitored feedback route.	Active packet and distribution evidence.	Distribution is an implementation event with partner, timing, reach, and traceability requirements, not merely the final step of writing.	CDC, 2024; Glasgow et al., 1999, 2019; Khan et al., 2018; Wagemakers et al., 2010; WHO, 2018
T - Track, Correct, and Learn	Post-release evidence is monitored; errors or changes trigger correction or retirement and return the packet to the earliest affected phase.	Correction or retirement record and improvement actions.	Monitoring, correction, evaluation, and maintenance share one feedback loop; combining them preserves accountability without adding redundant handoffs.	Baranowski & Stables, 2000; CDC, 1999; D'Lima et al., 2021; Ishizumi et al., 2024; McLees et al., 2015; Proctor et al., 2011; Saunders et al., 2005; WHO, 2026

3.4.3 Alternative structures considered and status of finalization

The audit considered but rejected four alternatives. A single combined communication checklist was rejected because it collapsed substantive quality, authority, and workflow. A seventh ACTION domain for correction was rejected because correction readiness and performance depend on the same partner, channel, distribution, and feedback controls as Networked dissemination. Merging Authenticate with Keep Accountable was rejected because source concordance and publication authority are distinct evidence questions. Dividing Track, Correct, and Learn into three phases was rejected because the proposed subphases lacked independent activation criteria and produced one integrated learning record. These are design judgments subject to Stage 0 challenge and revision, not empirically established optimality.

Table 2. Retrospective design decisions and current status

Design element	Status after revision	Rationale
Persistent packet object	Retained	Shared substrate connecting the communication-governance and implementation layers across source, audience, action, renderings, approvals, distribution, correction, and retirement.
ACTION release-quality domains	Retained in governance layer	Domain boundaries were tightened; each control has one primary governance home and may appear in PACKET only as an activity, gate, evidence item, or measure.
PACKET operating cycle	Retained as implementation layer	Provides dependency-ordered operational guidance and explicit phase outputs; feedback can return to the earliest affected phase.
Use of the term Verified	Restricted	An object is an ACTION Packet during development and becomes a Verified ACTION Packet only after all applicable release-critical controls and authority requirements are resolved.
Risk tiers	Retained as provisional	Review intensity should be proportionate, but thresholds require external content review and inter-rater testing.
Critical versus required checklist classes	Retained as provisional	Release-blocking status is a design proposition, not consensus. Every classification requires Stage 0 appraisal.
Local support linkage	Clarified as conditional	Support is required only when the recommended action depends on a service, resource, or contact pathway.
Auditability claim	Operationalized	A proposed audit protocol and evidence standard were added; effectiveness of auditing remains untested.

3.5 Internal appraisal, stakeholder status, and current evidentiary status

Internal appraisal used four framework-quality questions - clarity of purpose, theoretical basis, comprehensiveness, and practical applicability - adapted from contemporary framework appraisal, together with checks for construct distinctness, role assignability, observability, proportionality, lifecycle accountability, and empirical testability (Muellmann et al., 2026; Wang et al., 2026). Coverage was checked against the seven public health framework themes and the WHO-INTEGRATE substantive, procedural, and evidence categories (Rehfuess et al., 2019; Stratil et al., 2020). The appraisal examined whether each control had one primary conceptual home, whether every ACTION domain and PACKET phase produced an observable output, whether lifecycle transitions had decision owners, whether routine scenarios could use lighter controls, and whether the architecture generated testable propositions. This process supports conceptual coherence only; it does not establish content validity, reliability, feasibility, or effectiveness.

The article therefore reports a proposed pre-implementation framework specification and validation agenda. No Delphi process, prospective co-design, cognitive testing, inter-rater study, or field implementation has been completed. Participatory development approaches such as PEARLE demonstrate the value of repeated qualitative inquiry, iterative content refinement, and community advisory review when communication is localized for specific populations (Aronson et al., 2022). Because those activities were not part of the initial construction, Stage 0 external appraisal is a prerequisite to routine use; the proposed panel composition is specified in Section 6.2. The multi-method consensus process used to develop the Public Health Communication Competency Framework further illustrates the scrutiny required before a framework is described as consensus based (McWhirter et al., 2025).



Figure 1 Development Pathway and Evidentiary Status of the proposed VAP Framework

4. Two-Layer Framework Specification

4.1 Terminology and two-layer architecture

An ACTION Packet is a persistent, versioned public health communication record that links an authoritative recommendation to a defined audience, jurisdiction, validity period, prioritized action, applicable local support, approved renderings, authorization, distribution, correction, and evaluation fields. The visible SMS, flyer, web card, audio script, social post, call-center prompt, or partner brief is a rendering of the packet rather than the complete packet. The packet is the shared governed object used by both framework layers.

The object becomes a Verified ACTION Packet only when the applicable release-critical ACTION criteria are resolved, the required publication authority is recorded, and the packet is ready for or has entered active distribution. 'Verified' is therefore a bounded process declaration. It does not imply that the source science is infallible, that all recipients will understand or act, or that behavioral or health effectiveness has been demonstrated.

The framework has two operational layers linked by the persistent packet. The communication-governance layer defines what must be controlled and evidenced before, during, and after release: ACTION domains, provenance, authorization, versioning, lifecycle, risk, correction, and audit. The implementation layer defines how work proceeds through the PACKET cycle. Evidence and validation structures assess the content validity, decision reliability, fidelity, feasibility, effectiveness, and equity of each layer without treating them as interchangeable constructs.

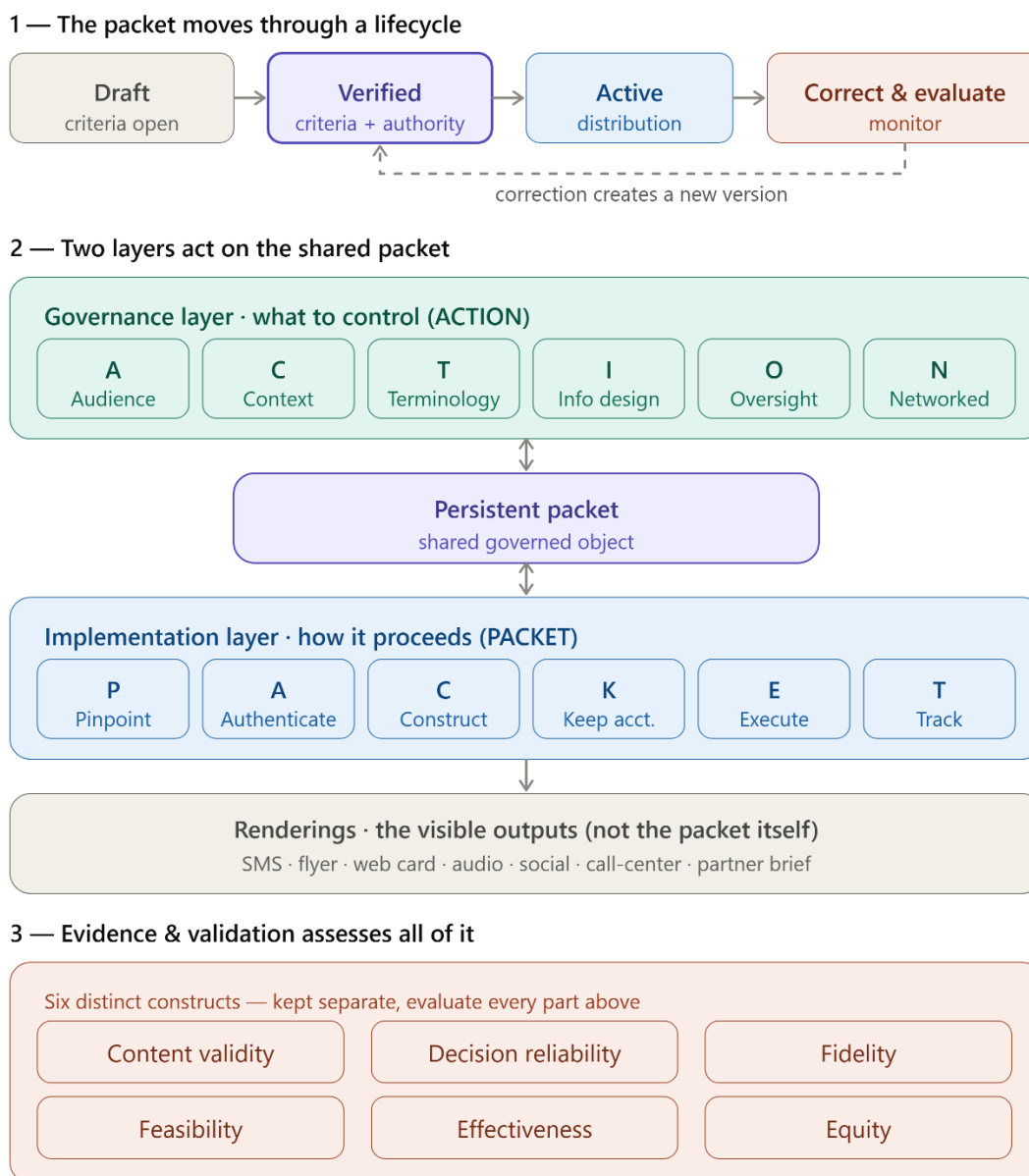


Figure 2. Architecture of the Verified ACTION PACKET Framework.

4.2 Communication-governance layer: ACTION release-quality domains

The communication-governance layer specifies the release-quality and accountability controls applied before release and during correction. ACTION is its six-domain release screen. The six domains were finalized as provisional constructs through the boundary tests described in Section 3.4 and Table 2A. Each control has one primary domain. The same subject may reappear in PACKET as an activity, decision gate, evidence item, or evaluation measure, but it is not counted twice as a construct. ACTION is a governance checklist and decision structure rather than a psychometric scale.

Table 3. ACTION domains and construct boundaries

Domain	Construct definition	Primary verification question	Required output
A - Audience and access	Intended population, jurisdiction, preferred language or variety, literacy context, disability, device and offline access, timing, non-discrimination, and privacy-minimizing access arrangements.	Who must receive and use the information, and what access conditions must be met?	Audience and access profile.
C - Context and cultural fit	Practical barriers, cost and burden, institutional assumptions, cultural and historical context, stigma, examples, images, forms of address, acceptability, and trusted messengers.	Will the communication make sense and remain feasible without stereotyping or shifting avoidable burden to the audience?	Context and feasibility appraisal.
T - Terminology, tone, and calibrated risk	Terminology, agency, directive force, negation, urgency, probability, uncertainty, conditions, exceptions, escalation criteria, and non-stigmatizing tone.	Does each rendering preserve the authorized action, risk, and uncertainty?	Reviewed language and risk record.
I - Information design and actionability	Main-message and action prominence, instruction sequence, explanation of numbers and risk, usable support details, and channel-specific usability.	Can the intended audience identify what to do, when to do it, and how to complete it?	Actionable rendering set.
O - Oversight, provenance, and version control	Source, evidence limits and applicability, version, validity, reviewers, publication authority, exceptions, role consolidation, synchronization, correction authority, and retirement status.	Can authority, validity, review, changes, and supersession be traced?	Approval and version record.
N - Networked dissemination, feedback, and correction	Audience-channel fit, partner readiness, distribution evidence, privacy-proportionate tracing, feedback route, correction contact, acknowledgment, and residual reach.	Can the packet reach the intended population and be corrected after release?	Distribution and correction plan.

Cross-cutting safeguards are applied to every ACTION judgment. Evidence certainty, relevance, directness, and local applicability are assessed wherever a release decision depends on evidence and are recorded principally under Oversight. Equity and human-rights questions - including autonomy, privacy, non-discrimination, stigma, affordability, and distribution of burden - are operationalized across Audience, Context, Terminology, Oversight, and Networked dissemination rather than isolated in a single letter (Akrami et al., 2018; Calanan et al., 2023; Rehfuess et al., 2019; Stratil et al., 2020; Zadey et al., 2021). This cross-cutting treatment is provisional and requires external appraisal to ensure that ethical concerns are visible rather than diluted.

4.3 Implementation layer: PACKET operating cycle

The implementation layer operationalizes the governance requirements through PACKET. Its six phases were finalized as dependency-ordered handoffs, as shown in Table 2B. PACKET specifies how an ACTION Packet is activated, authenticated, constructed, authorized, distributed, corrected, retired, and improved. The sequence is ordered but iterative rather than strictly linear. New guidance, service changes, audience feedback, distribution failures, or identified errors return the packet to the earliest phase whose output is no longer valid.

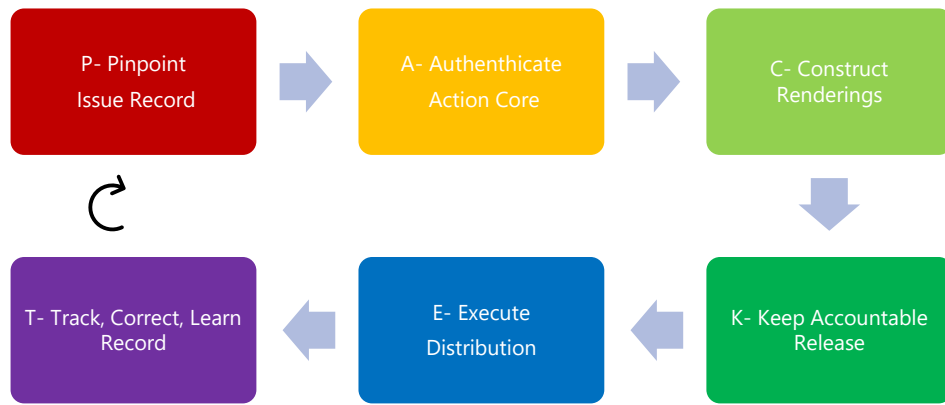


Figure 3. The PACKET operating cycle.

Table 4. PACKET phases, responsibilities, activities, and outputs

Phase	Who	When	Primary activity	Required output
P - Pinpoint	Program lead with community and operational input	At activation or a predefined trigger	Define the communication need, intended population, jurisdiction, decision window, urgency, trigger, and provisional risk tier.	Issue record and activation decision.
A - Authenticate	Subject-matter verifier and service owner when support is required	Before message construction	Confirm authoritative source and version, evidence limits and applicability, population, authorized action, uncertainty, validity, and support feasibility.	Authenticated action core.
C - Construct	Communication, language, accessibility, and community contributors	After authentication and before authorization	Create and synchronize plain-language, multilingual, accessible, culturally appropriate, channel-specific renderings and qualifiers.	Synchronized candidate renderings.
K - Keep Accountable	Publication authority and required reviewers	Before release and after material revision	Apply ACTION, resolve release-critical items, document publication authority and exceptions, set validity, and confirm correction and safety-hold routes.	Verified release-ready packet or documented withholding.
E - Execute	Distribution coordinator and prepared partners	During the approved validity period	Release through audience-relevant channels and prepared partners, record distribution, and maintain a monitored, accessible feedback route.	Active packet and distribution evidence.
T - Track, Correct, and Learn	Correction lead, evaluator, partners, and publication authority	Throughout activation and after retirement	Monitor receipt, comprehension, access, support availability, errors, context and source changes; correct, retire, evaluate, and improve.	Correction or retirement record and improvement actions.

PACKET phases are not equal-duration stages and do not imply that one role performs one phase. They are minimum handoff states defined by outputs. Parallel work is permitted when dependencies are protected; for example, accessibility planning may begin during Pinpoint, but a rendering cannot become an authorized version until the authenticated action core and release gate are complete. The framework therefore evaluates phase outputs, decision ownership, rework, and exceptions rather than elapsed completion of a rigid linear sequence.

4.4 Cross-layer control mapping

The cross-layer map assigns each major control one primary ACTION domain in the communication-governance layer while showing where it is enacted in the PACKET implementation layer, who owns the decision, and how it may be evaluated. This separation prevents conceptual overlap from becoming double-counting in fidelity assessment.

Table 5. Cross-layer governance and implementation mapping

Control	Primary ACTION domain	PACKET phase(s)	Decision owner	Evidence or measure
Audience and preferred language	A	Pinpoint; Construct	Program lead; language lead	Audience profile; preferred-language receipt; subgroup missingness.
Local feasibility and practical barriers	C	Authenticate; Construct	Program lead; service owner; community reviewer	Feasibility appraisal; support identification; action barriers.
Directive force, risk, and uncertainty	T	Authenticate; Construct	Subject-matter verifier; language reviewer	Concordance review; comprehension of action and escalation.
Main-message prominence and usable instructions	I	Construct; Keep Accountable	Communication lead; publication authority	Usability test; action identification; error rate.
Source, version, validity, and authority	O	Authenticate; Keep Accountable; Track	Verifier; publication authority; correction lead	Release integrity; version traceability; correction time.
Partner routing, feedback, and correction reach	N	Execute; Track	Partner coordinator; correction lead	Acknowledgment; reach estimate; residual circulation.

4.5 Core packet and lifecycle specification

The proposed core record preserves the information required to reconstruct what was authorized, for whom, during which period, in which form, by whom, through which channels, and with what correction status. The framework does not prescribe a software platform. A controlled paper or electronic register is sufficient when it maintains version links, permissions, and an audit trail. In digital implementations, the core fields may be represented as structured metadata to support synchronization across platforms, automated expiration alerts, version comparison, accessibility monitoring, and channel-specific correction; interoperability specifications remain a subject for later development and testing.

Table 6. Proposed core ACTION Packet record

Field group	Proposed core record
Identity and provenance	Packet identifier; version; status; prior and superseding versions; issuing authority; source title, date, version, retrieval time, and evidence limits.
Scope and validity	Jurisdiction; intended audience and exclusions; effective time; review time; expiration or event trigger; risk tier; decision window.
Authorized action core	One prioritized action; essential secondary steps; qualifiers; uncertainty; escalation criteria; groups needing different advice.
Applicable support	Verified service or contact pathway when needed, including cost, hours, eligibility, capacity, language access, disability access, transport, identification, and contingency.

Field group	Proposed core record
Renderings and synchronization	Language or variety; format and channel; drafter and reviewer; accessibility adaptation; parity status; synchronization status; approved exception.
Approval and decision record	Factual verifier; language and accessibility reviewers; publication authority; timestamps; role consolidation; unresolved issues; approved exceptions.
Distribution, feedback, correction, and evaluation	Partners and channels; release evidence; feedback route; correction contact; severity; affected versions; residual reach; retirement evidence; primary measures and subgroup variables.

Lifecycle states are Draft, Authenticated, Constructed, Authorized, Active, Correcting, Safety hold, and Retired. Material changes create a new version rather than overwriting the prior record. A packet may not enter Active status until release integrity is established. A safety hold pauses distribution when a potentially harmful error, unavailable essential support, privacy incident, or inability to trace a high-risk release is identified.

4.6 Provisional risk classification

Risk classification sets review intensity; it does not determine whether factual accuracy or publication authority can be omitted. The decision aid is provisional. Reviewers classify each dimension and use the highest applicable tier. Any credible possibility of serious harm, reversed action, unavailable essential support, or untraceable high-reach distribution triggers Tier 3. Disagreement is resolved upward pending adjudication and documented.

Table 7. Provisional risk-tier decision aid

Dimension	Tier 1: routine	Tier 2: consequential	Tier 3: safety-critical
Potential harm	Minor inconvenience or easily corrected misunderstanding.	Material delay, lost access, or inappropriate but usually reversible action.	Serious injury, major exposure, reversed directive, privacy incident, or substantial inequitable harm.
Urgency and decision window	Routine; delay of days is unlikely to matter.	Time-sensitive; delay within hours or a day may reduce benefit.	Immediate or rapidly evolving; delay may cause serious harm.
Reach and concentration	Limited or targeted reach.	Multiple channels or groups; moderate reach.	Mass or hard-to-trace distribution; high-consequence population concentration.
Reversibility and correction	Easy to replace or clarify through known channels.	Correction possible but incomplete or burdensome.	Recall difficult; forwarding, print, oral transmission, or dispersed partner routing creates persistent exposure.
Source uncertainty and change	Stable recommendation and service conditions.	Some uncertainty or foreseeable update.	Conflicting authorities, rapidly changing guidance, or unstable essential service conditions.
Dependence on external support	Action is self-executable.	Action depends on verified local support with contingency.	Action fails or becomes harmful if essential support is unavailable.

Dimension	Tier 1: routine	Tier 2: consequential	Tier 3: safety-critical
Minimum intensity	Core packet record; roles may be combined; routine review and correction.	Independent factual review; current support check; language/access review; partner readiness; active correction route.	Separation of authentication and release authority where feasible; safety-hold authority; rapid traceability; independent restart and after-action review.

4.7 Release integrity, fidelity, and auditability

ACTION is not interpreted as a single psychometric score. Four implementation measures are proposed. Release integrity is all-or-none: every applicable release-critical criterion is resolved and the publication authority is recorded. Critical completion is the number of applicable critical criteria resolved divided by the number applicable. Required completion is calculated separately. Domain fidelity reports completion within each ACTION domain. Approved not-applicable determinations count as resolved only when the rationale and authority are recorded; unresolved or failed items count as incomplete.

PACKET fidelity is phase based: the number of applicable phases with their required output, timestamp, and decision owner recorded divided by the number applicable. Time within phases, rework, exceptions, and safety holds are reported separately. These definitions require empirical testing and should not be interpreted as validated scores.

Table 8. Proposed fidelity and auditability definitions

Measure	Operational definition	Unit	Use
Release integrity	All applicable release-critical ACTION criteria resolved; required publication authority recorded; current source and validity confirmed.	Packet level; all-or-none.	Release gate and safety outcome.
ACTION critical completion	Resolved applicable critical items / applicable critical items.	Packet and domain levels.	Descriptive fidelity; not a psychometric score.
ACTION required completion	Resolved applicable required items / applicable required items.	Packet and domain levels.	Implementation quality and learning.
PACKET phase fidelity	Applicable phases with required output, time, and owner / applicable phases.	Packet and phase levels.	Process fidelity and bottleneck analysis.
Minimum audit	Quarterly or scenario-defined review of all high-risk packets and a prespecified sample of routine packets; additional review after material correction or safety hold.	Organization level.	Source/version evidence, approval, synchronization, distribution, correction, retirement, exceptions, and corrective action.
Audit finding	Conforming, minor nonconformity, major nonconformity, or safety concern, with an owner and due date.	Packet and system levels.	Corrective and preventive action record.

4.8 Correction severity

Correction assurance is channel specific. A web item may be replaced and redirected; an SMS may require a follow-up correction; a partner email may require acknowledgment; print requires withdrawal from known distribution points; and radio or oral communication requires repeat messaging. The record distinguishes confirmed retirement from reasonable corrective effort.

Table 9. Provisional correction-severity model

Severity	Definition	Required response
Level 0: nonmaterial	Typography or formatting that does not alter meaning, action, eligibility, timing, or accessibility.	Correct in the next release; retain a change log.
Level 1: operational	Hours, location, contact, transport, capacity, or other support detail changes without changing the health recommendation.	Issue a superseding version promptly; notify affected partners and channels; reverify support.
Level 2: consequential	Eligibility, uncertainty, qualifier, accessibility, or translation error that may cause non-action or inappropriate action.	Pause affected versions; expedited review and authorization; active correction; assess residual reach.
Level 3: safety-critical	Harmful or reversed directive, material factual error, unavailable essential support, privacy incident, or untraceable high-risk release.	Immediate safety hold; incident review; broad correction or withdrawal; independent restart; after-action review.

5. Theory of Change and Illustrative Application

5.1 Proposed causal pathway

The framework's intended effects are expressed as a proposed causal pathway that links inputs and context, through the governance and implementation mechanisms, to immediate outputs, proximal communication outcomes, and distal service and health outcomes. Figure 4 summarizes this pathway and the moderators that condition it.

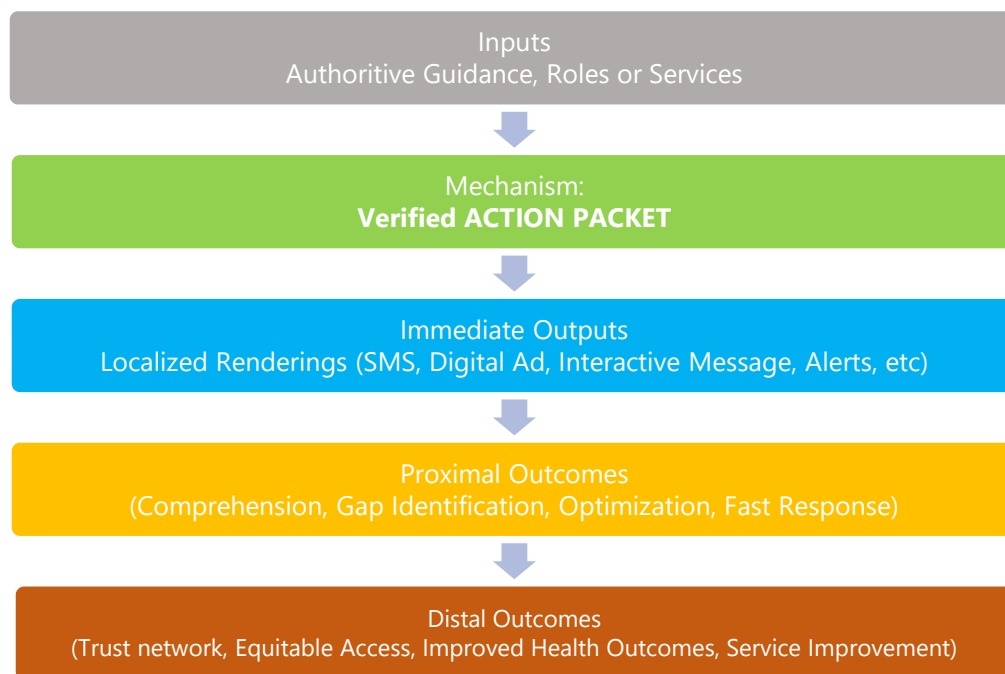


Figure 4. Proposed theory of change.

The theory of change supports six initial propositions: stronger interaction between the governance and implementation layers should improve completeness and correction traceability; release integrity should reduce unsynchronized or unauthorized releases; stronger ACTION domain fidelity should improve proximal communication outcomes; verified support should moderate

the relationship between comprehension and successful action; risk-proportionate controls should reduce routine burden without increasing material error; and partner acknowledgment should shorten correction time. These are hypotheses, not findings.

5.2 Hypothetical Tier 2 heat-risk packet

The following fictional example demonstrates how the specification constrains a message. It is not current health guidance and must not be activated without local verification.

Table 10. Hypothetical Tier 2 application

Packet element	Illustrative specification
Activation	Fictional county heat advisory plus a protocol-defined increase in heat-related emergency visits.
Packet status	ACTION Packet during development; becomes Verified ACTION Packet when release integrity is achieved. Tier 2 unless local conditions trigger Tier 3.
Audience and access	Adults aged 65 years or older living alone in two neighborhoods; English and Spanish; large print, audio, and offline partner distribution.
Authorized action	Spend the hottest part of the day in an air-conditioned location, with emergency escalation criteria stated separately.
Applicable support	Cooling centers with confirmed hours, capacity, free entry, step-free access, transit, language support, phone contact, and contingency if a site closes.
Construction and review	Plain-language SMS, flyer, web card, audio script, and partner brief; independent factual, language, accessibility, and publication review.
Distribution and correction	Senior housing, community health workers, faith organizations, radio, SMS, and call center; partner acknowledgment and a correction contact recorded.
Evaluation	Release integrity, preferred-language receipt, comprehension of the action and escalation instruction, support identification, correction time, burden, and neighborhood/language gaps.

5.3 Routine Tier 1 contrast

A routine seasonal mosquito source-reduction reminder using stable guidance, limited local distribution, and no dependence on a service could combine program-lead and publication roles, use the core packet record, and follow normal correction procedures. Source, audience, validity, action, authorization, and correction readiness would still be required. This contrast illustrates that risk proportionality changes review intensity rather than eliminating governance.

6. Staged Validation and Evaluation Agenda

6.1 Matching claims to evidence

Framework development, content validity, usability, decision reliability, feasibility, comparative effectiveness, and scale are different evidentiary stages. The present article supports only the relevance of the problem, traceability of the design logic, and conceptual plausibility of the proposed structure. Claims should expand only as corresponding evidence accumulates.

Table 11. Staged validation sequence

Stage	Primary question	Suitable methods	Permitted claim
Stage 0: external appraisal	Are the domains, phase definitions, risk dimensions, critical classifications, and correction levels relevant, complete, distinct, understandable, and acceptable?	Multidisciplinary expert panel; compensated community and partner review; content-validity ratings; cognitive interviews; standardized case walkthroughs.	Revise components and publish the decision record. No implementation recommendation beyond controlled testing.

Stage	Primary question	Suitable methods	Permitted claim
Stage 1: usability and decision reliability	Can intended users apply definitions consistently in realistic scenarios?	Tabletop exercises; usability testing; inter-rater studies of ACTION judgments, risk tiers, lifecycle transitions, and correction severity; adjudication analysis.	Refine training, definitions, thresholds, and exceptions.
Stage 2: bounded feasibility implementation	Can two or three scenarios be implemented with acceptable fidelity, burden, safety, equity, and data completeness?	Prospective quality-improvement pilot; time-and-motion; packet audits; partner logs; brief audience assessments; qualitative debriefs.	Continue, modify, or stop using prespecified progression criteria.
Stage 3: comparative implementation study	Does the framework improve process and proximal communication outcomes relative to usual workflow?	Controlled before-after, stepped-wedge, interrupted time-series, matched comparison, or pragmatic cluster design.	Estimate effects on release integrity, synchronization, correction, receipt, comprehension, access, and burden.
Stage 4: effectiveness and scale	Under what conditions does implementation improve action, service use, or health outcomes and remain sustainable and equitable?	Hybrid effectiveness-implementation design; economic and equity evaluation; longitudinal maintenance assessment.	Scale, adapt, or de-implement based on benefit, harm, cost, equity, and context.

6.2 Stage 0 external appraisal protocol

Stage 0 should be completed before routine field use. The panel should include local and regional public health practitioners, emergency risk communicators, language-access and translation experts, disability and accessibility specialists, community-based organizations, representatives of intended audiences, implementation researchers, ethicists, and records or governance personnel. Recruitment, compensation, conflicts, decision authority, and dissent should be reported.

Each ACTION criterion, PACKET phase, risk dimension, lifecycle transition, and correction level should be rated for relevance, clarity, feasibility, and potential harm if omitted. A priori revision rules should be specified. Qualitative feedback should document missing concepts, overlap, unacceptable burden, power imbalances, and conditions requiring local adaptation. Results should be used to revise the framework before reliability or feasibility testing.

6.3 Feasibility and comparative outcomes

Initial implementation should designate release integrity or another feasibility outcome as primary. Secondary outcomes should include ACTION and PACKET fidelity, elapsed and active staff time, translation and accessibility effort, partner burden, material errors, correction time, preferred-language receipt, comprehension, support identification, accessibility, trust, and subgroup gaps. Distal behavior or health outcomes should remain exploratory until the proposed mechanisms and implementation fidelity are demonstrated.

A safety pause overrides favorable communication outcomes. Progression criteria should address unresolved safety patterns, inequitable receipt or comprehension, excessive burden, partner readiness, correction performance, and data completeness. Any audience assessment should be cognitively tested in each study language and accessibility format.

7. Relationship to Existing Frameworks and Standards

The proposed framework is an integrative specification rather than a replacement for communication theory, emergency operations, alerting infrastructure, competency frameworks, implementation science, or quality improvement. Table 12 positions its bounded contribution against the closest substantive and methodological comparators.

Table 12. Focused comparison with adjacent frameworks and standards

Framework or standard	Primary contribution	Relationship to VAP
Muellmann et al. public health framework synthesis (2026)	Maps 39 frameworks into development, implementation, evaluation, dissemination/sustainability, organizational, ethical, and contextual themes.	Used as a revision-stage completeness check. VAP is narrower: it governs a communication object and makes authority, versioning, distribution evidence, and correction explicit.
WHO-INTEGRATE and criteria overview	Values- and complexity-informed evidence-to-decision framework; benefits/harms, rights, acceptability, societal effects, equity, costs, feasibility, and evidence.	Informs cross-cutting evidence, rights, equity, cost, feasibility, and procedural-accountability tests; VAP does not replace an EtD process.
WHO Communication for Health planning guide (2026)	Broad cycle for understanding, planning, developing, testing, implementing, evaluating, and learning.	Provides intervention planning. VAP specifies a persistent versioned object, authenticated action core, release gate, correction, and retirement within or across interventions.
WHO principles and CDC Clear Communication Index	Accessibility, actionability, credibility, relevance, timeliness, understandability, main message, behavior, numbers, and risk.	Primary foundations for ACTION information quality; VAP adds provenance, authority, local feasibility, synchronized variants, distribution evidence, and correction governance.
CDC Framework for Program Evaluation, GTO, and ACME	Stakeholder engagement, program description, focused evaluation, credible evidence, use of findings, planning, audience-channel-message alignment.	Inform Pinpoint, Construct, Execute, and Track; VAP adds object-level release integrity and version lifecycle.
CDC CERC, WHO emergency risk communication, and Common Alerting Protocol	Preparedness, listening, trust, coordination, uncertainty, identifiers, locations, effective times, updates, cancellation.	Inform Authenticate, Execute, Networked dissemination, safety holds, and correction; VAP adds local action feasibility, language/access review, and authority records.
MRC complex interventions, CICI, EquIR, and adaptation frameworks	Complexity, context, implementation, equity, adaptation, feasibility, and iterative evaluation.	Support Context, risk proportionality, local adaptation, and staged validation; they do not define the packet object or release gate.
CFIR, implementation outcomes, and RE-AIM	Implementation determinants and outcomes including reach, effectiveness, adoption, implementation, fidelity, and maintenance.	Can diagnose adoption barriers and evaluate VAP implementation; they do not specify communication provenance, authorization, synchronization, or correction records.
PEARLE, cultural assessment, and coordinated-action approaches	Participatory inquiry, iterative localization, cultural assessment, stakeholder collaboration, and partnership evaluation.	Inform Audience, Context, Construct, and Stage 0 appraisal; VAP acknowledges that these participatory steps were not completed during initial construction.
V3 and IMPACT	Layered fit-for-purpose evaluation and sequential improvement phases with explicit outputs and feedback.	Methodological exemplars used to separate evidence questions and workflow outputs; not substantive communication standards.

Framework or standard	Primary contribution	Relationship to VAP
Information-ecosystem and misinformation frameworks	Treat misinformation and correction as system and network problems rather than isolated message defects.	Inform distribution traceability, feedback, correction reach, residual circulation, and learning under Networked dissemination and Track.
Public Health Communication Competency Framework	Consensus-derived workforce knowledge, skills, attitudes, and professional communication competencies.	Guides workforce development; VAP specifies the organizational object, release decisions, and workflow that competent staff may operate.

8. Discussion

The Verified ACTION PACKET Framework reframes public health communication as a governed implementation process rather than a publication event. Its proposed contribution is a two-layer architecture in which communication governance and implementation are linked through one persistent, versioned record. The governance layer integrates provenance, authorization, audience and context, synchronized renderings, local action feasibility, distribution, correction, and retirement. The implementation layer converts those requirements into an explicit operating cycle.

The distinction among the governed object, the communication-governance layer, the implementation layer, and lifecycle status is central. The ACTION Packet is the shared object; ACTION defines six release-quality and accountability questions; PACKET defines six dependency-ordered handoffs; lifecycle states define status; and evaluation tests whether the combined system is feasible, reliable, equitable, and associated with improved outcomes. The six-and-six architecture is not claimed to be a natural or universally optimal taxonomy. It is the smallest internally coherent specification retained after overlap, output, role, and evaluation-boundary testing and after comparison with the public health framework and WHO-INTEGRATE literatures (Muellmann et al., 2026; Rehfuess et al., 2019; Stratil et al., 2020).

The derivation tables clarify what would falsify the present architecture. External reviewers may find that two ACTION domains cannot be applied reliably, that a missing ethical or evidentiary construct requires a seventh domain, that Authenticate and Keep Accountable cannot be distinguished in practice, or that Track, Correct, and Learn requires separation. Such findings should lead to revision of the framework rather than preservation of the mnemonic. Memorability is subordinate to content validity, decision reliability, feasibility, and safety.

The framework also narrows the meaning of verification. A message is not verified merely because its factual statements match a source. Verification requires evidence that the authorized action, intended audience, jurisdiction, validity, applicable support, renderings, approvals, and correction route satisfy the requirements assigned to the risk tier. Even then, verification remains a process declaration rather than evidence of effectiveness.

Local support is conditional but consequential. Communication cannot compensate for absent services, unaffordable action, inaccessible sites, or unstable capacity. When the action is infeasible, the appropriate response is operational change, alternative action, or transparent limitation rather than additional messaging. The theory of change therefore treats service capacity and practical barriers as moderators rather than assuming that better communication alone produces behavior change.

The revised framework makes risk tiers, critical checklist classes, and correction levels explicitly provisional. This is important because these features allocate authority and can delay or block release. They require community and practitioner appraisal, standardized cases, and inter-rater testing before operational dependence. A lighter Tier 1 pathway is retained to prevent safety governance from becoming indiscriminate administrative burden.

The framework remains narrower than the 2026 WHO Communication for Health cycle and broader than a message-quality checklist. It can function as an object-level mechanism within a communication intervention, emergency response, or quality-improvement program. Its comparative value should be judged by whether the persistent packet and the separation of governance from implementation improve release integrity, local feasibility, synchronization, and correction performance - not by the mnemonic structure itself.

From a digital public health perspective, the framework supplies a governance layer that is often missing between authoritative guidance and its multiple digital representations. Its contribution is not a new communication technology, platform, or algorithm, but a channel-independent information and accountability structure through which digital and non-digital products can share provenance, validity periods, approvals, accessibility requirements, distribution evidence, and correction status. Future research should examine machine-readable implementation, interoperability with public health information systems, automation bias, data minimization, cybersecurity, and digitally mediated inequities.

9. Limitations

This article presents a proposed preimplementation framework. It has not undergone external content validation, community consensus, usability testing, reliability assessment, field implementation, or comparative evaluation. No claim is made that the framework improves communication, behavior, service use, or health outcomes.

The evidence synthesis was design oriented and non-systematic. Reproducible original search strings, duplicate screening, a complete screening count, source-level extraction counts, and formal evidence grading were not preserved. The retrospective audit and revision-stage triangulation against published reviews improve traceability but cannot prove saturation or completeness (Muellmann et al., 2026; Stratil et al., 2020). Component finalization therefore remains dependent on the retained source set and developer judgment. Developer positionality and disciplinary background should be fully reported after unblinding. Important records-management, emergency-operations, Indigenous communication, legal, or jurisdiction-specific requirements may be missing.

The evidence base is influenced by COVID-19, English-Spanish communication, and United States governance. The initial construction did not include prospective community co-design or intended-audience testing. Substantial adaptation may be required for sign languages, Indigenous languages, oral-language communities, low-resource settings, decentralized authority, and jurisdictions with different alerting or records systems. Future participatory work must address compensation, representation, tokenism, disagreement, and power imbalance rather than treating community review as a procedural endorsement.

ACTION and PACKET definitions, risk tiers, critical classifications, correction severity, and audit categories are provisional. The six-domain and six-phase structure has not undergone content-validity rating, cognitive testing, inter-rater assessment, or workflow observation. It may encourage checklist compliance, obscure cross-cutting ethical issues, create delays, or preserve distinctions that users cannot apply consistently. External appraisal must therefore examine missing constructs, overlap, opportunity cost, unintended consequences, and circumstances in which domains or phases should be merged, separated, simplified, or omitted with documented rationale.

Equity and outcome assessment may be limited by small samples, missing data, privacy constraints, unstable subgroup estimates, and differential access to feedback channels. Distal outcomes have many determinants; attribution to the framework would require adequate implementation fidelity, theory-informed measurement, and comparative designs.

10. Conclusion

Public health systems often detect risk more reliably than they convert guidance into practical, accessible, and correctable communication. The Verified ACTION PACKET Framework specifies a persistent communication object operated through two linked layers. The communication-governance layer defines ACTION release-quality domains and controls for provenance, authority, lifecycle, risk, audit, and correction. The implementation layer defines the iterative PACKET workflow. Together, the layers make source-to-retirement decisions visible and reviewable.

The framework's defensible contribution is bounded: provenance-to-retirement governance for a local, community-facing public health communication object. ACTION and PACKET have been finalized only as an internally coherent specification for testing. The appropriate next step is external multidisciplinary and community appraisal of the twelve components and their boundaries, followed by usability and decision-reliability testing, bounded feasibility implementation, and comparative evaluation. Only after these stages should the architecture be described as validated, consensus based, or recommended for scale-up.

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References

- Adams, C., Walpola, R., & Harrison, R. (2025). Using patient experience data with IMPACT: A framework for healthcare improvement. *Patient Experience Journal*, 12(3), 142-151. <https://doi.org/10.35680/2372-0247.2059>
- Akrami, F., Zali, A., Abbasi, M., Majdzadeh, R., Karimi, A., Fadavi, M., & Mehrabi Bahar, A. (2018). An ethical framework for evaluation of public health plans: A systematic process for legitimate and fair decision-making. *Public Health*, 164, 30-38.
- Aronson, I. D., Bennett, A. S., Ardouin-Guerrier, M.-A., Rivera-Castellar, G. J., Gibson, B. E., & Vargas-Estrella, B. (2022). Using the participatory education and research into lived experience (PEARLE) methodology to localize content and target specific populations. *Frontiers in Digital Health*, 4, 992519. <https://doi.org/10.3389/fdgth.2022.992519>
- Baranowski, T., & Stables, G. (2000). Process evaluations of the 5-a-day projects. *Health Education & Behavior*, 27(2), 157-166.
- Baur, C., & Prue, C. (2014). The CDC Clear Communication Index is a new evidence-based tool to prepare and review health information. *Health Promotion Practice*, 15(5), 629-637. <https://doi.org/10.1177/1524839914538969>
- Brach, C., Keller, D., Hernandez, L. M., Baur, C., Parker, R., Dreyer, B., Schyve, P., Lemerise, A. J., & Schillinger, D. (2012). Ten attributes of health literate health care organizations. *National Academy of Medicine*.
- Calanan, R. M., Bonds, M. E., Bedrosian, S. R., Laird, S. K., Satter, D., & Penman-Aguilar, A. (2023). CDC's guiding principles to promote an equity-centered approach to public health communication. *Preventing Chronic Disease*, 20, 230061. <https://doi.org/10.5888/pcd20.230061>
- Centers for Disease Control and Prevention. (1999). Framework for program evaluation in public health. *MMWR Recommendations and Reports*, 48(RR-11), 1-40.
- Centers for Disease Control and Prevention. (2019). CDC Clear Communication Index: A tool for developing and assessing CDC public communication products: User guide. <https://stacks.cdc.gov/view/cdc/103706>
- Centers for Disease Control and Prevention. (2024). Crisis & Emergency Risk Communication (CERC) manual. <https://www.cdc.gov/cerc/php/cerc-manual/index.html>
- Centers for Disease Control and Prevention. (2025). Plain language materials and resources. <https://www.cdc.gov/health-literacy/php/develop-materials/plain-language.html>
- Chinman, M., Imm, P., Wandersman, A., Kaftarian, S., Neal, J., Pendleton, K. T., & Ringwalt, C. (2001). Using the Getting To Outcomes (GTO) model in a statewide prevention initiative. *Health Promotion Practice*, 2(4), 302-309.
- Colina, S., Marrone, N., Ingram, M., & Sanchez, D. (2017). Translation quality assessment in health research: A functionalist alternative to back-translation. *Evaluation & the Health Professions*, 40(3), 267-293. <https://doi.org/10.1177/0163278716648191>
- D'Lima, D., Soukup, T., & Hull, L. (2021). Evaluating the application of the RE-AIM planning and evaluation framework: An updated systematic review and exploration of pragmatic application. *Frontiers in Public Health*, 9, 755738. <https://doi.org/10.3389/fpubh.2021.755738>
- Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implementation Science*, 4, 50. <https://doi.org/10.1186/1748-5908-4-50>
- Damschroder, L. J., Reardon, C. M., Opra Widerquist, M. A., & Lowery, J. (2022). The updated Consolidated Framework for Implementation Research based on user feedback. *Implementation Science*, 17, 75. <https://doi.org/10.1186/s13012-022-01245-0>
- Daniels, N. (2000). Accountability for reasonableness. *BMJ*, 321(7272), 1300-1301.
- Duncan, E., O'Cathain, A., Rousseau, N., Croot, L., Sworn, K., Turner, K. M., Yardley, L., & Hoddinott, P. (2020). Guidance for reporting intervention development studies in health research (GUIDED): An evidence-based consensus study. *BMJ Open*, 10, e033516. <https://doi.org/10.1136/bmjopen-2019-033516>
- Escoffery, C., Lebow-Skelley, E., Udelson, H., Boing, E. A., Wood, R., Fernandez, M. E., & Mullen, P. D. (2019). A scoping study of frameworks for adapting public health evidence-based interventions. *Translational Behavioral Medicine*, 9(1), 1-10.
- Eslava-Schmalbach, J., Garzon-Orjuela, N., Elias, V., Reveiz, L., Tran, N., & Langlois, E. V. (2019). Conceptual framework of equity-focused implementation research for health programs (EquIR). *International Journal for Equity in Health*, 18, 80.
- Findling, M. G., Caporello, H. L., Stein, R. I., Wade, C. G., Lubell, K. M., Briseno, L., & SteelFisher, G. K. (2023). Communications for US populations with limited English proficiency during infectious disease outbreaks: A scoping review. *Health Security*, 21(6), 489-499. <https://doi.org/10.1089/hs.2023.0050>

- Glasgow, R. E., & Emmons, K. M. (2007). How can we increase translation of research into practice? Types of evidence needed. *Annual Review of Public Health*, 28, 413-433.
- Glasgow, R. E., Harden, S. M., Gaglio, B., Rabin, B., Smith, M. L., Porter, G. C., Ory, M. G., & Estabrooks, P. A. (2019). RE-AIM planning and evaluation framework: Adapting to new science and practice with a 20-year review. *Frontiers in Public Health*, 7, 64. <https://doi.org/10.3389/fpubh.2019.00064>
- Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Public Health*, 89(9), 1322-1327. <https://doi.org/10.2105/AJPH.89.9.1322>
- Goldsack, J. C., Coravos, A., Bakker, J. P., Bent, B., Dowling, A. V., Fitzer-Attas, C., Godfrey, A., Godino, J. G., Gujar, N., Izmailova, E., Manta, C., Peterson, B., Vandendriessche, B., Wood, W. A., Wang, K. W., & Dunn, J. (2020). Verification, analytical validation, and clinical validation (V3): The foundation of determining fit-for-purpose for biometric monitoring technologies. *npj Digital Medicine*, 3, 55. <https://doi.org/10.1038/s41746-020-0260-4>
- Gopichandran, V., & Indira Krishna, A. K. (2013). Monitoring 'monitoring' and evaluating 'evaluation': An ethical framework for monitoring and evaluation in public health. *Journal of Medical Ethics*, 39(1), 31-35.
- Green, L. W. (1986). Evaluation model: A framework for the design of rigorous evaluation of efforts in health promotion. *American Journal of Health Promotion*, 1(1), 77-79.
- Halliday, M. A. K., & Matthiessen, C. M. I. M. (2014). *Halliday's introduction to functional grammar* (4th ed.). Routledge.
- Hoddinott, P., Allan, K., Avenell, A., & Britten, J. (2010). Group interventions to improve health outcomes: A framework for their design and delivery. *BMC Public Health*, 10, 800. <https://doi.org/10.1186/1471-2458-10-800>
- House, J. (2015). *Translation quality assessment: Past and present*. Routledge.
- Huff, R. M., Kline, M. V., & Visencio Dobbins, D. (2015). The Cultural Assessment Framework. In R. M. Huff, M. V. Kline, & D. V. Peterson (Eds.), *Health promotion in multicultural populations: A handbook for practitioners and students* (3rd ed., pp. 127-149). Sage.
- International Organization for Standardization. (2015). ISO 17100:2015 Translation services - Requirements for translation services. <https://www.iso.org/standard/59149.html>
- Ishizumi, A., Kolis, J., Abad, N., Prybylski, D., Brookmeyer, K. A., Voegeli, C., Wardle, C., & Chiou, H. (2024). Beyond misinformation: Developing a public health prevention framework for managing information ecosystems. *The Lancet Public Health*, 9(6), e397-e406.
- Jha, A., Lin, L., Short, S. M., Argentini, G., Gamhewage, G., & Savoia, E. (2018). Integrating emergency risk communication into the public health system response: Systematic review of literature to aid formulation of the 2017 WHO guideline for emergency risk communication policy and practice. *PLOS ONE*, 13(10), e0205555. <https://doi.org/10.1371/journal.pone.0205555>
- Khan, Y., O'Sullivan, T., Brown, A., Tracey, S., Gibson, J., Genereux, M., Henry, B., & Schwartz, B. (2018). Public health emergency preparedness: A framework to promote resilience. *BMC Public Health*, 18, 1344.
- Klepac Pogrmilovic, B., O'Sullivan, G., Milton, K., Biddle, S. J. H., Bauman, A., Bellew, W., Cavill, N., Kahlmeier, S., Kelly, M. P., Mutrie, N., et al. (2019). The development of the Comprehensive Analysis of Policy on Physical Activity (CAPPA) framework. *International Journal of Behavioral Nutrition and Physical Activity*, 16, 60.
- Kothari, A., Graham, I. D., Dougherty, M., de Carvalho Coroa, R., Mochcovitch, D. G. V., Cassidy, C., Etherington, A., Ingabire, M. G., Gittings, L., Gogovor, A., et al. (2024). Advancing scaling science in health and social care: A scoping review and appraisal of scaling frameworks. *BMC Health Services Research*, 24, 1488.
- Kristensen, F. B., Lampe, K., Wild, C., Cerbo, M., Goettsch, W., & Becla, L. (2017). The HTA Core Model - 10 years of developing an international framework to share multidimensional value assessment. *Value in Health*, 20(2), 244-250.
- Kusters, I. S., Gutierrez, A. M., Dean, J. M., Sommer, M., & Klyueva, A. (2023). Spanish-language communication of COVID-19 information across US local health department websites. *Journal of Racial and Ethnic Health Disparities*, 10(5), 2482-2489. <https://doi.org/10.1007/s40615-022-01428-x>
- Lampe, K., Makela, M., Garrido, M. V., Anttila, H., Autti-Ramo, I., Hicks, N. J., Hofmann, B., Koivisto, J., Kunz, R., Karki, P., et al. (2009). The HTA Core Model: A novel method for producing and reporting health technology assessments. *International Journal of Technology Assessment in Health Care*, 25(Suppl. 2), 9-20.
- Leeman, J., Sommers, J., Vu, M., Jernigan, J., Payne, G., Thompson, D., Heiser, C., Farris, R., & Ammerman, A. (2012). An evaluation framework for obesity prevention policy interventions. *Preventing Chronic Disease*, 9, E120. <https://doi.org/10.5888/pcd9.110322>
- Longworth, G. R., Goh, K., Agnello, D. M., Messiha, K., Beeckman, M., Zapata-Restrepo, J. R., Cardon, G., Chastin, S., & Gine-Garriga, M. (2024). A review of implementation and evaluation frameworks for public health interventions to inform co-creation: A Health CASCADE study. *Health Research Policy and Systems*, 22, 39.

- McCrabb, S., Mooney, K., Elton, B., Grady, A., Yoong, S. L., & Wolfenden, L. (2020). How to optimise public health interventions: A scoping review of guidance from optimisation process frameworks. *BMC Public Health*, 20, 1849.
- McLees, A. W., Nawaz, S., Thomas, C., & Young, A. (2015). Defining and assessing quality improvement outcomes: A framework for public health. *American Journal of Public Health*, 105(Suppl. 2), S167-S173.
- McWhirter, J. E., MacKay, M., McAlpine, D., Grant, L. E., & Papadopoulos, A. (2025). The Public Health Communication Competency Framework: Results from a multi-method and consensus-building process. *Canadian Journal of Public Health*. <https://doi.org/10.17269/s41997-025-01107-4>
- Milat, A. J., & Li, B. (2017). Narrative review of frameworks for translating research evidence into policy and practice. *Public Health Research & Practice*, 27(1), e2711704.
- Moullin, J. C., Sabater-Hernandez, D., Fernandez-Llimos, F., & Benrimoj, S. I. (2015). A systematic review of implementation frameworks of innovations in healthcare and resulting generic implementation framework. *Health Research Policy and Systems*, 13, 16.
- Muellmann, S., Jahnel, T., Pedros Barnils, N., Pan, C.-C., & Gerhardus, A. (2026). Frameworks for developing and evaluating public health interventions in primary prevention and health promotion: A scoping review. *BMC Public Health*, 26, 1239. <https://doi.org/10.1186/s12889-026-27174-x>
- Noar, S. M. (2012). An audience-channel-message-evaluation (ACME) framework for health communication campaigns. *Health Promotion Practice*, 13(4), 481-488.
- OASIS. (2010). Common Alerting Protocol version 1.2. <https://www.oasis-open.org/standard/cap/>
- Ortega, P., Martinez, G., & Diamond, L. (2020). Language and health equity during COVID-19: Lessons and opportunities. *Journal of Health Care for the Poor and Underserved*, 31(4), 1530-1535. <https://doi.org/10.1353/hpu.2020.0114>
- Partelow, S. (2023). What is a framework? Understanding their purpose, value, development and use. *Journal of Environmental Studies and Sciences*, 13, 510-519. <https://doi.org/10.1007/s13412-023-00833-w>
- Pfadenhauer, L. M., Gerhardus, A., Mozygemba, K., Lysdahl, K. B., Booth, A., Hofmann, B., Wahlster, P., Polus, S., Burns, J., Brereton, L., et al. (2017). Making sense of complexity in context and implementation: The Context and Implementation of Complex Interventions (CICI) framework. *Implementation Science*, 12, 21.
- Poland, B., Krupa, G., & McCall, D. (2009). Settings for health promotion: An analytic framework to guide intervention design and implementation. *Health Promotion Practice*, 10(4), 505-516.
- Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., Griffey, R., & Hensley, M. (2011). Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Administration and Policy in Mental Health*, 38, 65-76. <https://doi.org/10.1007/s10488-010-0319-7>
- Rehfuess, E. A., Stratil, J. M., Scheel, I. B., Portela, A., Norris, S. L., & Baltussen, R. (2019). The WHO-INTEGRATE evidence to decision framework version 1.0: Integrating WHO norms and values and a complexity perspective. *BMJ Global Health*, 4, e000844. <https://doi.org/10.1136/bmjgh-2018-000844>
- Rubio, B., Briseno, L., Kukucka, C., Liggett, L., Medina, M., Rodriguez, B., Dient Taillepierre, J., & Rodriguez Lainz, A. (2023). Pilot rapid assessment of cultural and linguistic appropriateness of COVID-19 educational materials. *Health Education Journal*, 82(6), 680-692. <https://doi.org/10.1177/00178969231181197>
- Rychetnik, L., Frommer, M., Hawe, P., & Shiell, A. (2002). Criteria for evaluating evidence on public health interventions. *Journal of Epidemiology and Community Health*, 56(2), 119-127.
- Saunders, R. P., Evans, M. H., & Joshi, P. (2005). Developing a process-evaluation plan for assessing health promotion program implementation: A how-to guide. *Health Promotion Practice*, 6(2), 134-147.
- Shekelle, P. G., Maglione, M. A., Luoto, J., Johnsen, B., & Perry, T. R. (2013). Global Health Evidence Evaluation Framework. Agency for Healthcare Research and Quality.
- Skivington, K., Matthews, L., Simpson, S. A., Craig, P., Baird, J., Blazeby, J. M., Boyd, K. A., Craig, N., French, D. P., McIntosh, E., et al. (2021). A new framework for developing and evaluating complex interventions: Update of Medical Research Council guidance. *BMJ*, 374, n2061.
- Stratil, J. M., Baltussen, R., Scheel, I., Nacken, A., & Rehfuess, E. A. (2020). Development of the WHO-INTEGRATE evidence-to-decision framework: An overview of systematic reviews of decision criteria for health decision-making. *Cost Effectiveness and Resource Allocation*, 18, 8. <https://doi.org/10.1186/s12962-020-0203-6>
- Tensmeyer, N. C., Dinh, N. N. L., Sun, L. T., & Meyer, C. B. (2022). Analysis of language translations of state governments' coronavirus disease 2019 vaccine websites. *Health Equity*, 6(1), 738-749. <https://doi.org/10.1089/heq.2021.0189>

- Thurston, W. E., Vollman, A. R., Wilson, D. R., MacKean, G., Felix, R., & Wright, M. F. (2003). Development and testing of a framework for assessing the effectiveness of health promotion. *Sozial- und Präventivmedizin*, 48(5), 301-316.
- Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., et al. (2018). PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, 169(7), 467-473.
- van Weert, J. C. M., Hermanns, S. S. T., Linn, A. J., & Schouten, B. C. (2011). Dance4life: Evaluating a global HIV and AIDS prevention program for young people using the Pre-Im framework for process evaluation. *International Public Health Journal*, 3(1), 99-110.
- Vanderkruijk, R., & McPherson, M. E. (2017). A contextual factors framework to inform implementation and evaluation of public health initiatives. *American Journal of Evaluation*, 38(3), 348-359.
- Wagemakers, A., Koelen, M. A., Lezwijn, J., & Vaandrager, L. (2010). Coordinated action checklist: A tool for partnerships to facilitate and evaluate community health promotion. *Global Health Promotion*, 17(3), 17-28.
- Wang, S., Killedar, A., Von Huben, A., Norris, S., & Wilson, A. (2026). Evaluation of health equity frameworks in telehealth and digital health: A systematic review and narrative synthesis. *Frontiers in Public Health*, 13, 1690117. <https://doi.org/10.3389/fpubh.2025.1690117>
- Wienert, J., & Zeeb, H. (2021). Implementing health apps for digital public health: An implementation science approach adopting the Consolidated Framework for Implementation Research. *Frontiers in Public Health*, 9, 610237.
- Wilson, K. M., Brady, T. J., & Lesesne, C., on behalf of the NCCDPHP Work Group on Translation. (2011). An organizing framework for translation in public health: The Knowledge to Action Framework. *Preventing Chronic Disease*, 8(2), A46.
- Wolfenstetter, S. B. (2011). Conceptual framework for standard economic evaluation of physical activity programs in primary prevention. *Prevention Science*, 12(4), 435-451.
- World Health Organization. (2010). Nine steps for developing a scaling-up strategy. World Health Organization.
- World Health Organization. (2018). Communicating risk in public health emergencies: A WHO guideline for emergency risk communication policy and practice. <https://www.who.int/publications/i/item/9789241550208>
- World Health Organization. (2026). Applying communication for health: Planning guide. World Health Organization Regional Office for the Western Pacific. <https://www.who.int/publications/i/item/9789290621041>
- World Health Organization. (n.d.). WHO principles for effective communications. <https://www.who.int/about/communications/principles>
- World Wide Web Consortium. (2024). Web Content Accessibility Guidelines (WCAG) 2.2. <https://www.w3.org/TR/WCAG22/>
- Zadey, S., Dharmadhikari, S., & Mukuntharaj, P. (2021). Ethics-driven policy framework for implementation of movement restrictions in pandemics. *BMJ Global Health*, 6, e005202.

Appendix A. Provisional ACTION Release Checklist

Record Resolved, Failed, Not applicable with justification, or Unresolved. Any failed or unresolved release-critical item blocks release. Classifications are provisional pending external appraisal and reliability testing.

Appendix Table A1. Provisional ACTION release checklist

Item	Provisional release criterion	Class
A1	Audience, jurisdiction, and communication context are defined.	Release-critical
A2	Preferred language or language variety is documented using local evidence rather than assumption.	Release-critical
A3	Literacy, disability, device, and offline access needs are addressed for the intended channel.	Release-critical
A4	Required language and accessibility variants have release-time parity or an approved, time-limited exception.	Release-critical
C1	Cost, transport, work schedules, documentation, stigma, service capacity, and other practical barriers are reviewed.	Release-critical when action depends on these conditions
C2	Examples, images, forms of address, and messengers are contextually appropriate and non-stereotyping.	Required

Item	Provisional release criterion	Class
C3	Community or partner interpretation and feasibility review is documented, or the absence and reason are recorded.	Required; candidate for release-critical classification in Stage 0
T1	Terminology is accurate and understandable in the target language and context.	Release-critical
T2	Agency, directive force, negation, conditions, uncertainty, probability, urgency, and exceptions preserve authorized meaning.	Release-critical
T3	Risk statements and numbers are explained without exaggeration or false reassurance.	Release-critical
I1	The main message and prioritized action appear first or are immediately audible.	Release-critical
I2	Instructions are sequenced and limited to the minimum needed for safe completion.	Required
I3	When action depends on local support, resource details are current and usable; otherwise, a rationale is recorded.	Release-critical
I4	The rendering is usable at the intended size, length, device, audio speed, or print format.	Release-critical
O1	Factual verifier, required specialist reviewers, publication authority, role consolidation, and timestamps are recorded.	Release-critical
O2	Packet identifier, source version, validity, risk tier, and synchronization status are visible or retrievable.	Release-critical
O3	Correction contact, severity procedure, and channel-specific follow-up are defined before release.	Release-critical
N1	Partner and channel selection is supported by audience-use, access, or trust evidence.	Required
N2	Partner readiness and correction acknowledgment method are confirmed.	Release-critical for partner-dependent distribution
N3	A low-burden, accessible, and monitored feedback route is available.	Required; candidate for release-critical classification in higher tiers
N4	Distribution evidence is sufficient for reach estimation and correction without unnecessary personal data.	Release-critical

Appendix B. Framework-Development Audit Trail

The table provides the minimum information that should accompany future revisions. Tables 2A and 2B are the current component-lineage record. The present article reports the retained design logic but cannot reconstruct unrecorded original screening counts, extraction counts, or search decisions.

Appendix Table B1. Framework-development audit trail

Audit element	Current record
Framework purpose and boundaries	Last-mile governance of a community-facing public health communication object; excludes clinical orders, case records, whole campaigns, and emergency operations plans.
Intended users	Program, subject-matter, communication, language, accessibility, partner, publication, correction, governance, and evaluation roles.
Evidence sources	Peer-reviewed research and authoritative guidance organized across eleven domains in Table 1; revision-stage triangulation against 39 public health frameworks and WHO-INTEGRATE criteria.
Search and selection limitations	Iterative targeted searching; no reproducible complete search string, duplicate screening, or formal grading.
Extraction unit	Observable operational requirement linked to a recurrent communication failure.
Retention criteria	Consequentiality, distinctness, assignability, observability, feasibility, risk proportionality, and evaluability.
Grouping logic	Separate object, substantive criteria, procedural controls, workflow phases, lifecycle states, and measures; assign one primary home; retain components with distinct questions, outputs, owners, and evaluation targets; apply mnemonics only after clustering.
Discarded or moved components	Coding and interoperability examples removed from the core article; operational tools moved to appendices; overlapping controls assigned one primary domain.
Stakeholder contribution	No prospective external or community contribution to initial construction; participatory Stage 0 appraisal is required before routine use.
Uncertainties	Whether six ACTION domains and six PACKET phases are complete and reliably distinguishable; risk thresholds; release-critical classifications; correction levels; fidelity definitions; audit categories; transferability.
Required future reporting	Developer positionality and expertise; panel composition, compensation, conflicts, ratings, dissent, revisions, usability, reliability, feasibility, burden, equity, safety, and comparative outcomes.