COMMUNITY-LEARNING CANON

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Abstract

Community learning ledgers are the governed research program for structurally anonymized health AI navigation across Small Island Developing States. The ledger is both the research instrument and the product: questions are the intelligence, and the community that asks is the community that learns. The paper proves two things: that the community evolves from exploration to active care, and that US-default AI systems fail the Caribbean.

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1. Scope

- **Target:** JAMA Network Open (Original Investigation)
- **Study:** CANONIC Community Learning Study, Arm A (CaribChat, Caribbean)
- **IRB:** Exempt determination under 45 CFR 46.104(d)(4)(ii)
- **PI:** Dexter Hadley, MD/PhD
- **Co-I:** Marisa Nimrod, MD, MPH (CAOH)
- **Jurisdictions:** 10 Caribbean
- **Patents:** PROV-007, PROV-008, PROV-009 (Hadley, Nimrod; CANONIC Foundation)
- **Comparator:** ChatGPT (GPT-4o, OpenAI; API, temperature=0, no system prompt)

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2. Paper Spec (MAGIC 255)

The paper makes **three claims**. Every section must serve at least one. No section may serve zero.

2.1 Claim 1: EVOLUTION

The community matures from exploration to active care navigation over 30 days.

- **Evidence:** Three-phase trajectory (screening epidemiology survivorship)
- **Metric:** Survivorship overtakes screening (29.8% vs 24.6%). Treatment doubles (11.4% 15.8%). Non-substantive drops (26.3% 7.3%).
- **Narrative arc:** what can you tell me? what does the data say? I am in treatment and need help
- **Proof:** Table 1 with early/late phase columns. Figure 1 with phase overlay. Figure 2 with domain evolution.

2.2 Claim 2: COMPARISON

CaribChat outperforms ChatGPT on Caribbean cancer navigation.

- **Evidence:** Head-to-head on 28 screening queries via OpenAI API (April 2, 2026)
- **Metric:** Facility citation 100% vs 46.4% (P<.001). Actionable navigation 100% vs 35.7% (P<.001).
- **Killer examples:** Toco (mobile units vs generic), Gasparillo (not recognized), whats their number? (Im sorry, I cant assist)
- **Proof:** Table 3. Figure 3. Raw API responses in governed repository. Scoring script reproducible.
- **Root cause:** Not a model limitation; a data layer limitation. Governed evidence + facility registry = the fix.

2.3 Claim 3: GOVERNANCE

Clinically relevant intelligence accumulates without PII, across jurisdictions without data protection law.

- **Evidence:** 136 sessions, 3-field schema (date, text, UUID), structural anonymization at capture
- **Metric:** 83.8% substantive. 10 jurisdictions. 9 cancer types. OECS 15-state endorsement.
- **Healing traditions:** 11.4% of queries. Four-level evidence schema. Herb-drug flagging 5/5.
- **Proof:** Ledger schema (eFigure 1). Privacy architecture. IRB exempt filing.

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3. Constraints

```
MUST:     Every section serve at least one of the three claims (EVOLUTION, COMPARISON, GOVERNANCE)
MUST:     Ledger data sourced from TALKS/CARIBCHAT/LEARNING.md (single source of truth)
MUST:     All thematic classifications auditable against ledger entries
MUST:     Comparison data reproducible (score_comparison.py + chatgpt_responses.json)
MUST:     Chart values sum to stated totals (no arithmetic drift)
MUST:     Three-phase evolution visible in Results (early/middle/late)
MUST:     ChatGPT comparison in Key Points, Abstract, Results, Discussion, Table 3
MUST:     Co-author affiliations UPPERCASED per JAMA convention
MUST:     Patent references cite inventor, assignee, application number
MUST:     Data freeze date and session target declared in paper text
MUST:     JAMA word limit: body 3000, abstract 350, figures+tables 5
MUST NOT: Include PII in any artifact
MUST NOT: Diverge from ledger counts
MUST NOT: Hand-edit DOCX (regenerate from markdown)
MUST NOT: Publish pre-freeze data as final (stage: WORK
MUST NOT: Mention MAGIC 255 by brand name in submissio
```

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4. Section Map

Section	Words	Claims Served	Key Data
Key Points	~100	ALL THREE	100% vs 46.4%, three-phase evolution, no PII
Abstract	350	ALL THREE	Full structured abstract with comparison P values
Introduction	~400	Sets up all three	No prior head-to-head; healing tradition gap; governance gap
Methods	~600	ALL THREE	Thematic + temporal classification; ChatGPT API protocol; ledger schema
Results: Evolution	~500	EVOLUTION	Three phases, domain shifts, narrative arc, exemplar threads
Results: Comparison	~400	COMPARISON	Table 3, Toco/Gasparillo/their number examples
Results: Secondary	~150	GOVERNANCE	Healing traditions 13/13, herb-drug 5/5
Discussion	~600	ALL THREE	Two main findings (comparison + evolution), healing traditions, privacy,

5. Reproducible Analyses

Every analysis in the paper can be regenerated from source. No manual steps.

```
# Working directory
cd ~/CANONIC/hadleylab-canonic/PAPERS/COMMUNITY-LEARNI

# 1. THEMATIC CLASSIFICATION  count SESSION_LEDGERED e
#    Source: TALKS/CARIBCHAT/LEARNING.md (single sourc
#    136 total, 114 substantive, 22 non-substantive

# 2. CHATGPT COMPARISON  run 28 screening queries thro
#    Requires: OPENAI_API_KEY (from ~/Code/mcode_trans
export OPENAI_API_KEY=$(grep OPENAI_API_KEY ~/Code/mco
#    Generates: chatgpt_responses.json (raw API respon
#    Note: responses are date-stamped (April 2, 2026).
#    different responses due to model updates. Origina

# 3. SCORING  automated scoring of comparison response
python3 score_comparison.py
#    Reads:  chatgpt_responses.json
#    Writes: comparison_scores.json
#    Output: CaribChat 28/28 (100%) vs GPT-4o 13/28 (4
#            CaribChat 28/28 (100%) vs GPT-4o 10/28 (3

# 4. FIGURES  render mermaid diagrams to PNG
for f in /tmp/mermaid-figs/fig*.mmd; do
  mmdc -i "$f" -o "fig_$(basename $f .mmd | tr -dc '0-9
done
#    Generates: fig_0.png through fig_9.png

# 5. SUBMISSION DOCX  compile from markdown
pandoc submission.md -f markdown -t docx -o submission

# 6. FULL PREPRINT DOCX  compile with embedded PNGs
python3 -c "
import re
with open('community-learning-ledgers-caribbean.md') as
n = [-1]
def r(m): n[0] += 1; return f'![](fig_{n[0]}.png)'
open('/tmp/p.md','w').write(re.sub(r'\x60\x60\x60merma
"
pandoc /tmp/p.md -f markdown -t docx -o community-learn
```

6. Artifacts

File	Type	Description
submission.md	Source	JAMA-formatted submission (3000 words body)
submission.docx	Compiled	Word document for submission
community-learning-ledgers-caribbean.md	Source	Full preprint (11,500 words, all appendices)
community-learning-ledgers-caribbean.docx	Compiled	Full preprint Word with embedded PNGs
chatgpt_responses.json	Data	Raw GPT-4o API responses (28 queries)
comparison_scores.json	Data	Structured scoring results
score_comparison.py	Code	Reproducible scoring script
fig_0.png through fig_9.png	Compiled	Mermaid diagram renders

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