Reducing Food Safety Violations through Education and the Use of Interpreter Services

Jennifer F. Ayrey, R.S.
Steven VanderWeide, MPH

October 15, 2026
WSEHA / WSPHA Joint Conference

WHATCOM COUNTY
HEALTH AND
COMMUNITY
SERVICES

Improving Inspection Compliance through Education and the Use of Interpreter Services

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Whatcom County, WA

WHATCOM COUNTY HEALTH AND COMMUNITY SERVICES

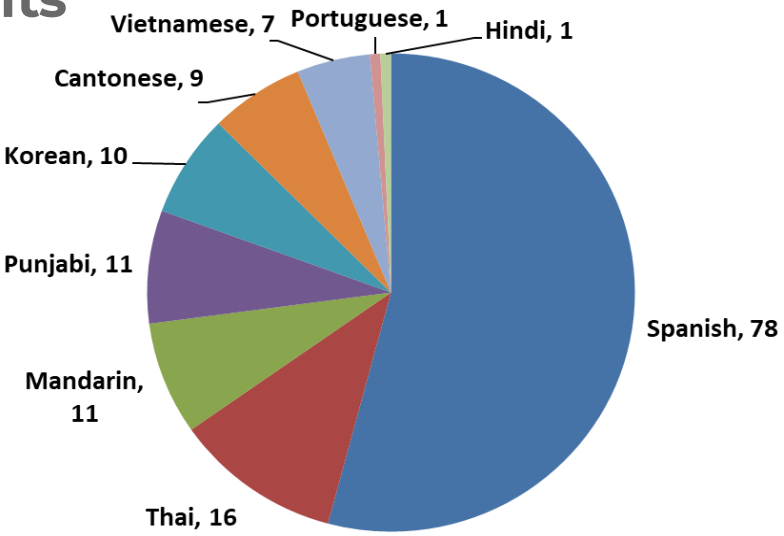
Team of 9 Food staff, 7 FTE

- 3 staff work in multiple departments
  - Living Environment, Solid Waste, Communicable Disease
- Population 242k, Bellingham 100k



Permit 1,354 Retail Food Establishments

- 300-400 Temp Establishments
  - Festivals, Farmers Markets, NW WA Fair
- Dockside Market – first US Port from AK
- About 10% (n=144) have a primary language other than English
  - *Inspector-reported, may change over time*



A New Chapter

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During & Post COVID

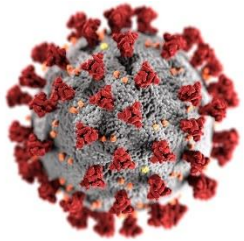
- Majority of Food staff re-tasked to contact tracing
- Virtual pre-opening inspections only
- No routine inspections conducted mid 2020 - late 2021
- Six new Food staff in 2022 (80% turnover)
  - Only one had prior inspection experience

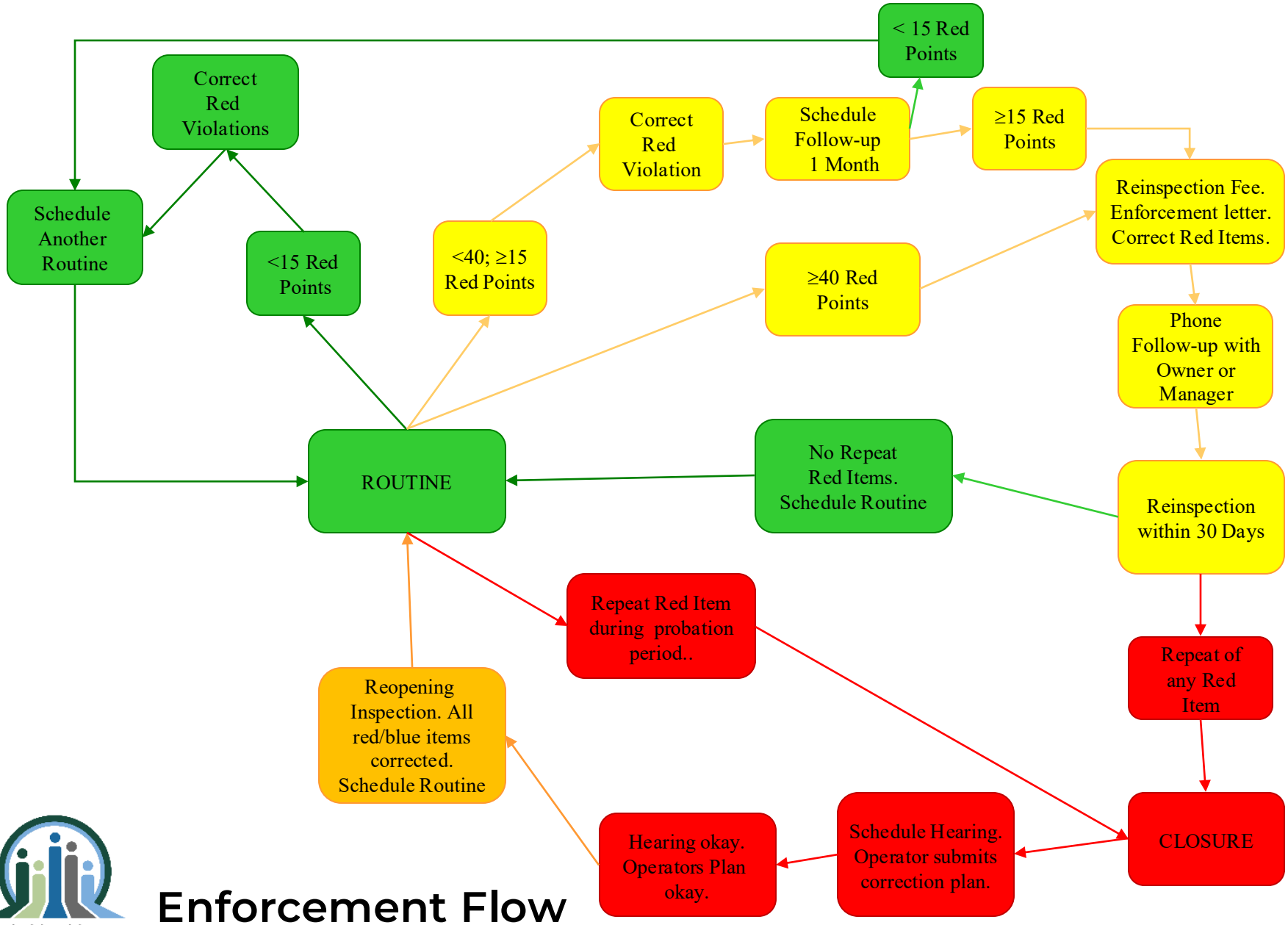
But the kitchen flows so much better this way!

Yeah, I bought the place last year, just paid the invoice when it came.

I've worked here for 2 years and never seen an inspector.

How can we help our operators stay in better compliance?





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Enforcement Flow 2001 - 2022

Two Major Goals

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Focusing on Education over Enforcement

- Conduct more courtesy visits and office visits
- Provide handouts for quick reference
- Food staff onsite trainings - occasionally

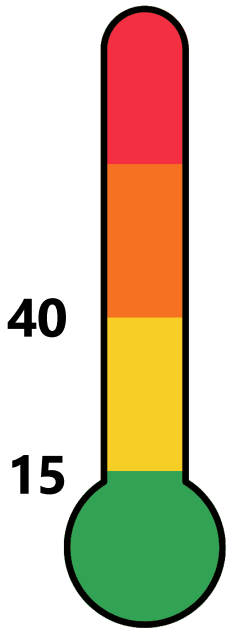
Support for non-English-fluent Operators

- Increase use of interpreters by phone and in-person
- Provide handouts in needed languages

Enforcement Workflow

Courtesy & Office Visits

- Only offered at Permit Suspension
- Phone or email follow-up with business owner



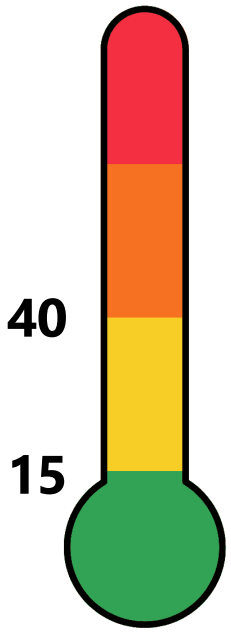
	Courtesy/Office Visit
Suspension	Mandatory OV
Re-Inspection	Not Offered
Follow-up	Not Offered
Approved	

2001-2022

Enforcement Workflow

Courtesy & Office Visits increased

- More chances to correct violations & provide education
- More steps to get into compliance prior to permit suspension



Suspension

Re-Inspection

Follow-up

Approved

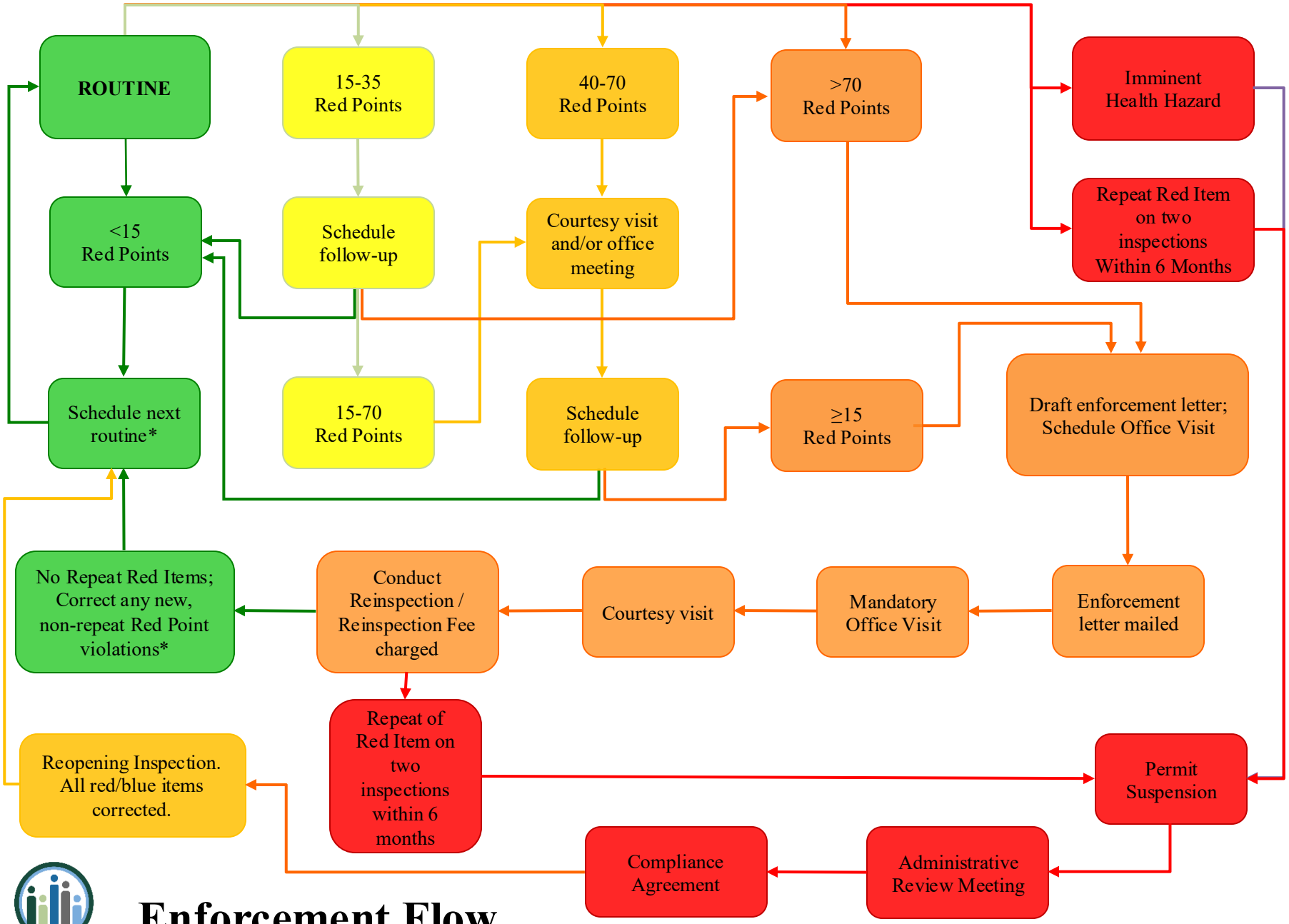
Courtesy/Office Visit

Mandatory OV

70+ Mandatory OV
40+ Mandatory OV or CV

Offered

2024- Present



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Enforcement Flow Jan 2024 - Present

* If a reinspection results in new Red Items the next routine should be scheduled based upon the new result (follow-up or reinspection required).

Use of Interpreters

Prior to 2015

- No line item in department budget for interpretation
- Permit suspension didn't seem to improve compliance
- Interpreters: WCHCS staff or an operator's friend or relative



Current Status

- $900/year budget
  - Costs vary due to time of day, demand, language
  - "Don't worry about going over budget."
- Phone interpreters through Glyph for field work
- In-person interpreters occasionally for office visits
- *Future project*: Translating materials into more languages

Proportion of Routine Inspections Approved, by English Fluency, 2015–2026

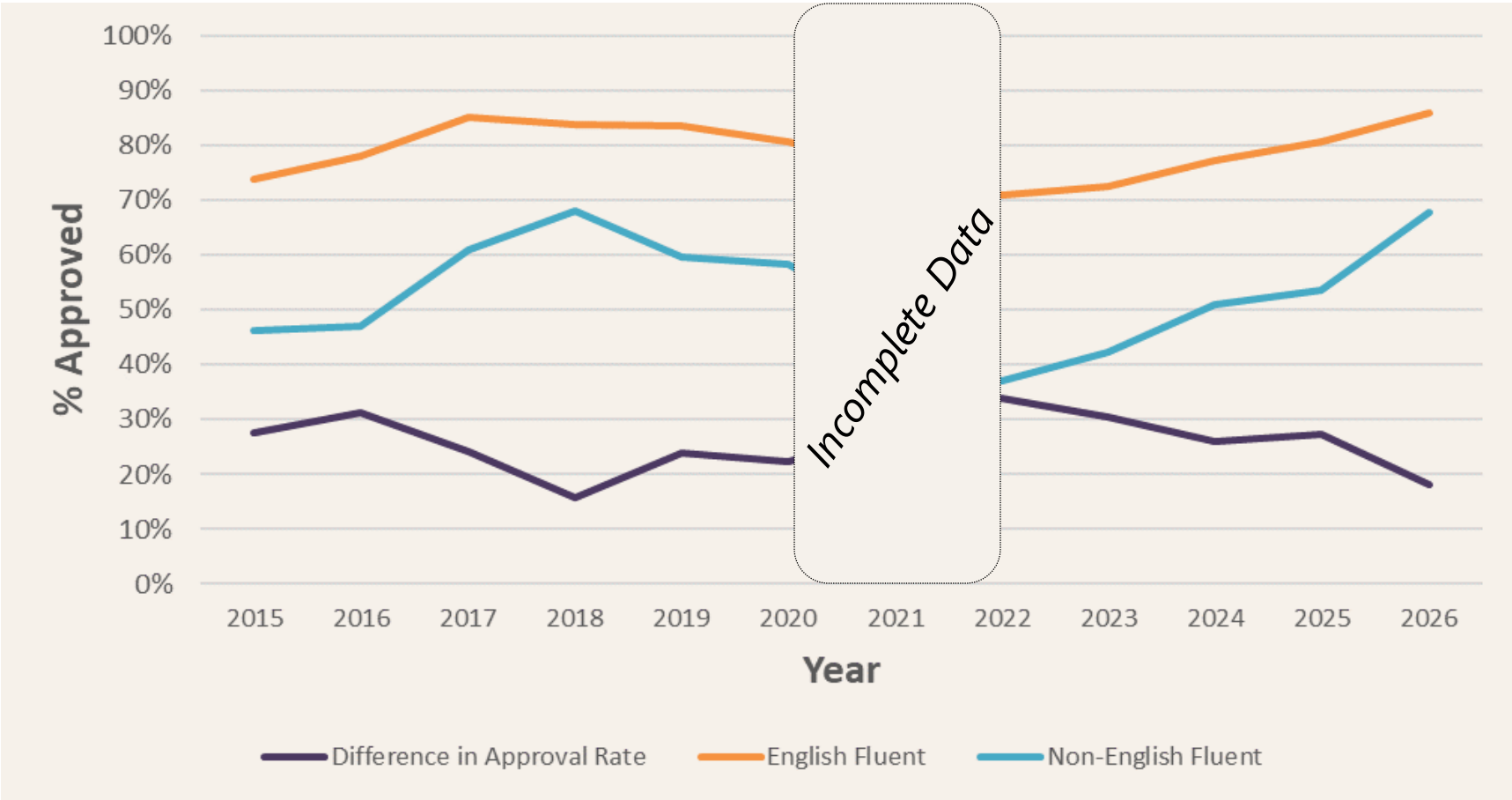


Figure 1. Proportion of routine inspections coded as approved among food establishments classified as English fluent and non-English fluent, 2015–2026. The black line shows the difference in approval rates between the two language groups. Years with cell counts below 5 were excluded.

Methods: Study Question

We wanted to know:

- Were approval rates different between English-fluent and non-English-fluent food establishments?
- Did approval rates change over time?
- Did trends change after new enforcement procedures in 2024,and did they change differently between the two groups?

Data source:

- Whatcom County retail-food routine inspection records, 2022-2026

All analysis conducted in R version 4.5.2

Methods: Analysis Design

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Study population

- N=2,293 routine retail-food inspections conducted from Q1 2022 through Q3 2026
- English-fluent establishments: n=1,920 inspections
- Non-English-fluent establishments: n=373 inspections

Outcome

- Routine inspection result coded Approved (<15 enforceable high-risk points)

Comparison groups

- English-fluent establishments
- Non-English-fluent establishments

Methods: Analysis Design (II)

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Descriptive comparison

- Routine inspection approval proportions were summarized by English-fluency group overall and for the pre-2024 (2022–2023) and post-2024 (2024–Q3 2026) periods.

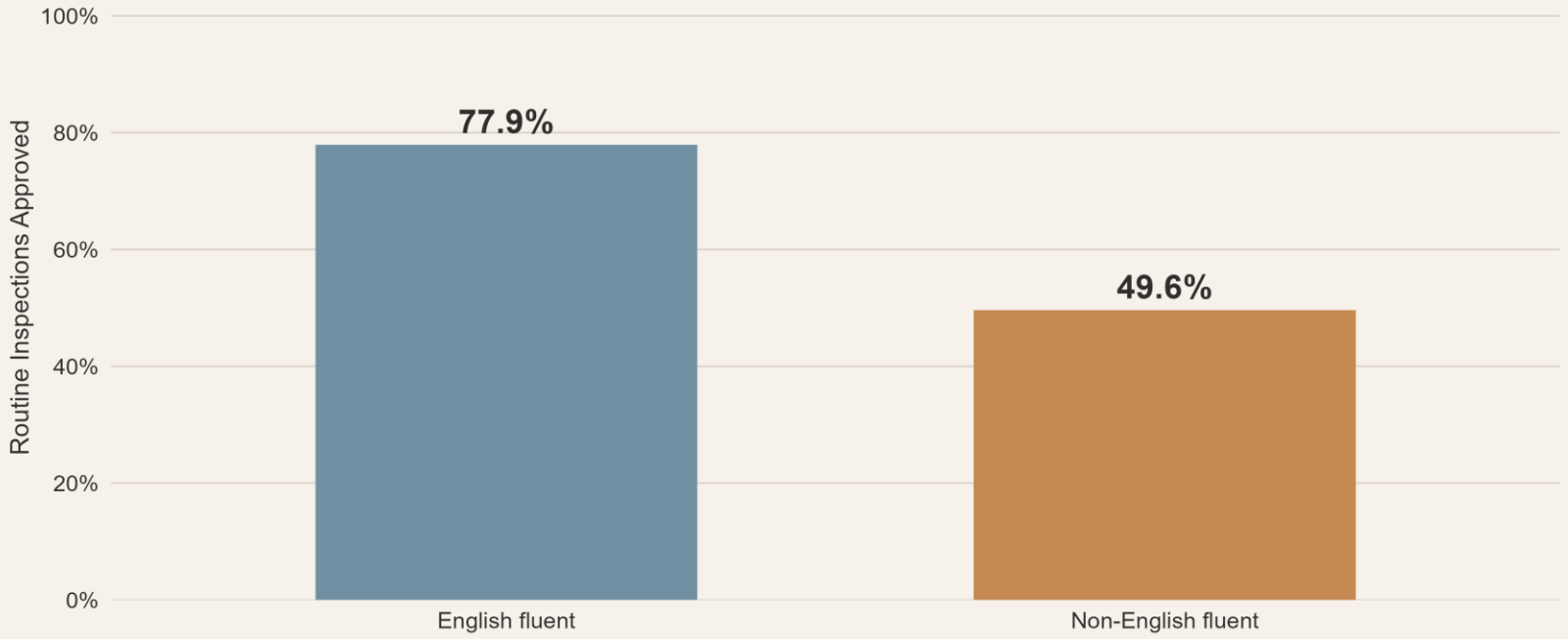
Inferential Statistics

- Segmented quasibinomial regression
- Quarterly approval counts were modeled over time
- 2024 was used as a prespecified change point to estimate pre and post 2024 trends
- We compared the slopes between language groups and tested whether the change in trend differed by English fluency.
- Statistical significance considered at $p<.05$

Descriptive Results

Overall approval rates differed by 28% between English fluent and non-English fluent establishments, 2022–2026

Figure 3. Routine Inspection Approval by English Fluency

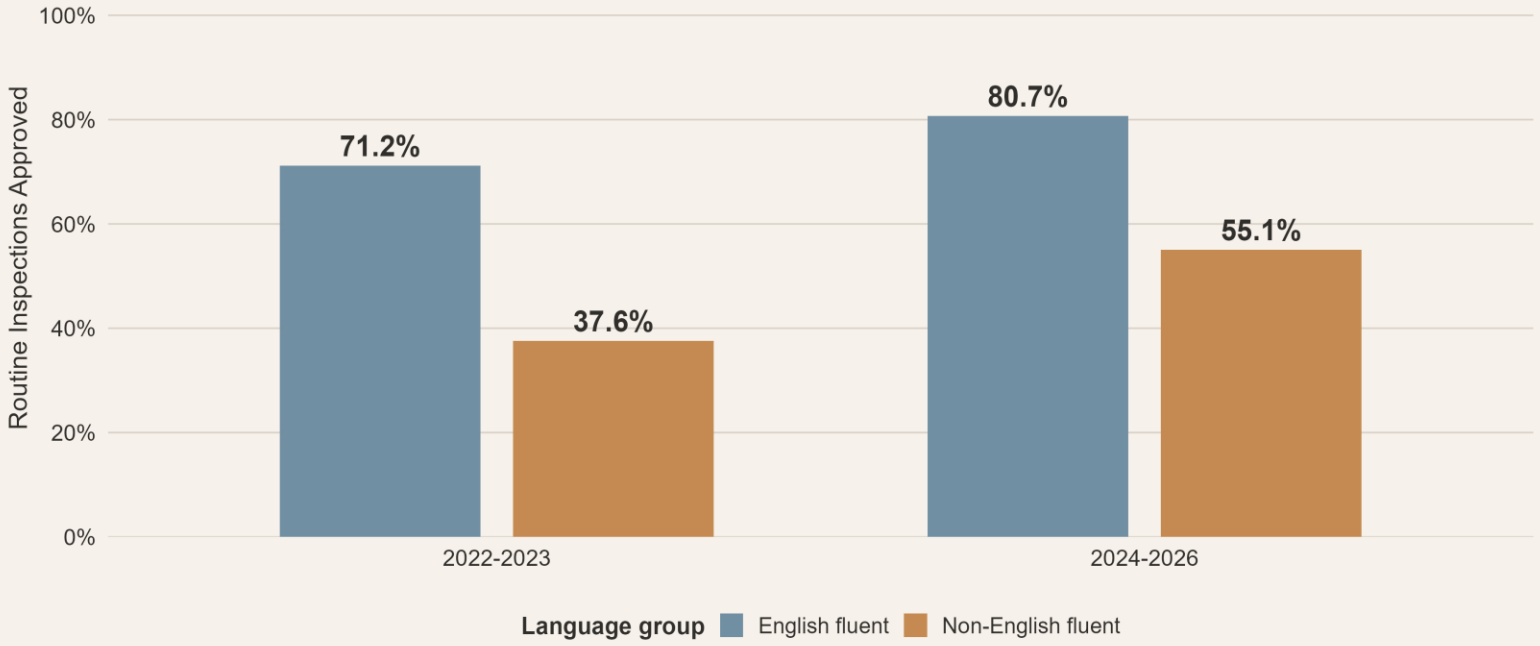


Across 2022–2026, 77.9% of routine inspections among English-fluent establishments were approved compared with 49.6% among non-English-fluent establishments, a difference of 28.3 percentage points.

Descriptive Results (II)

- The proportion of approved inspections increased in both groups, 2024-2026
- The observed difference in approval narrowed, 33.7% ➡ 25.1%

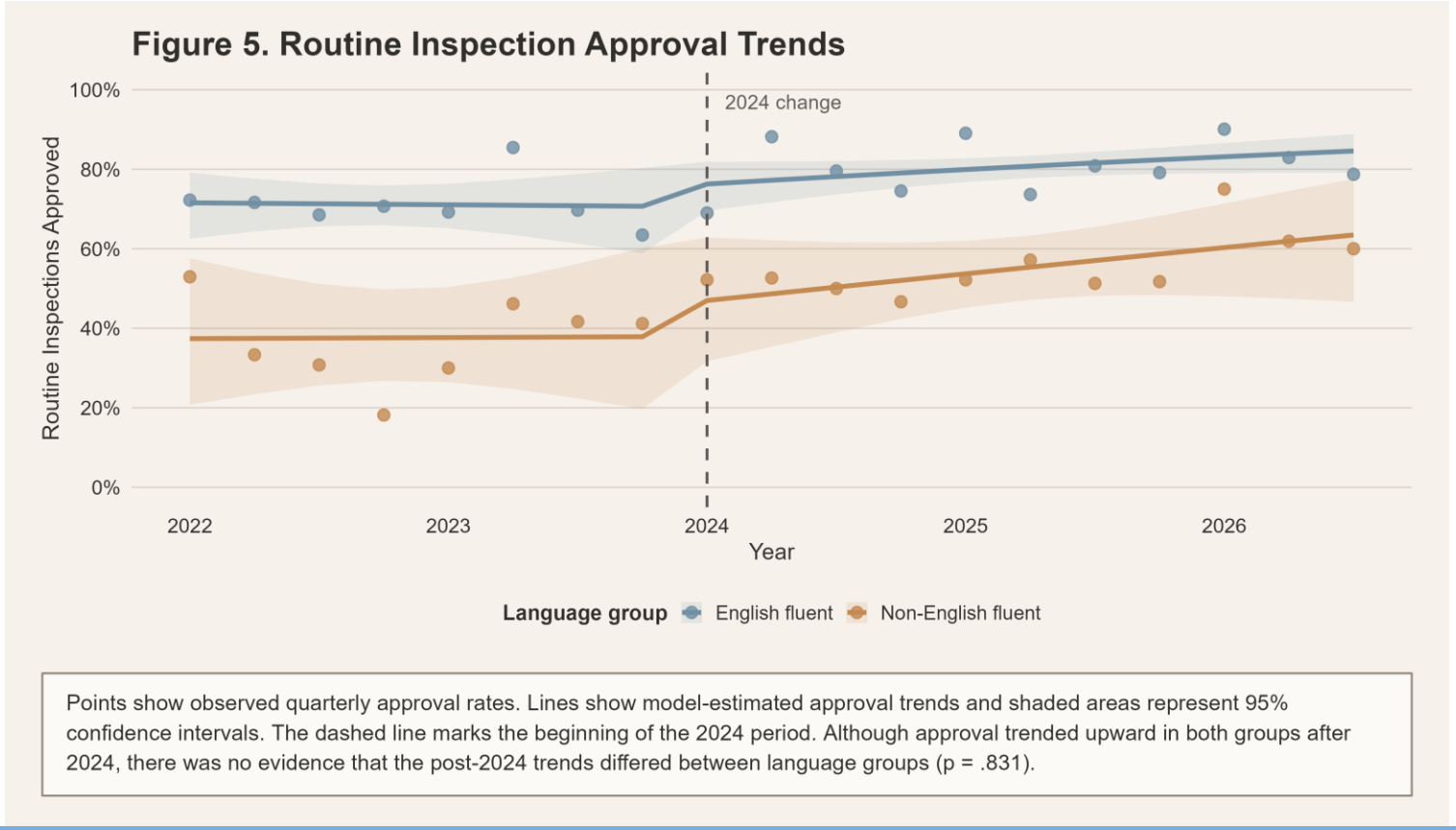
Figure 4. Approval Before and After 2024



Approval increased from 71.2% to 80.7% among English-fluent establishments and from 37.6% to 55.1% among non-English-fluent establishments. The observed difference decreased from 33.6 percentage points in 2022–2023 to 25.6 percentage points in 2024–2026.

Regression Analysis

- Approval rates differed significantly between groups over time $F(4,30)=17.90$, $(p<.001)$
- After 2024, both groups had an increase in the proportion of approved routine inspections; the increase was not statistically significant
- The estimated narrowing in approval gap was not statistically significant



Key Takeaways

Persistent Disparity

- Across 2022–Q3 2026, routine inspection approval was significantly lower among non-English-fluent establishments (49.6%) than English- fluent establishments (77.9%).

Higher approval rates after 2024

- Approval rates were higher during 2024–Q3 2026 in both language groups compared with 2022–2023. **Though the increase for both language groups was not statistically significant.**

Observed gap narrowed

- The approval-rate gap decreased by 8.0 percentage points after 2024, reflecting a larger observed increase in approvals among non-English-fluent establishments. **The estimated narrowing was not statistically significant** (95% CI: −7.4 to 23.4; p = .300).

Bias and Limitations

Potential Bias	Impact on Interpretation
Misclassification of English fluency	Misclassification could influence the estimated difference between language groups.
Aggregated analysis	The analysis does not account for establishment-level characteristics.
Confounding variables	Other factors may be associated with both English fluency and inspection outcomes.
Concurrent changes after 2024	Other changes such as new staff, inspection practices, enforcement, training, or the mix establishments inspected could contribute to post-2024 trends.
Small non-English sample size	Fewer non-English inspections, resulted in wider confidence intervals and limited power to detect differences in trends between groups.

Moving Forward

FDA-NEHA RFFM Program Standards Grant

- Second year receiving grant
- Currently, no standard evaluation of inspection practices among inspectors
- Different practices among inspectors may contribute to different inspection results
- One of the goals of program standardization is to improve consistency in how inspections are conducted

Understand Contributing Factors

- Survey Spanish-speaking operators and food staff
- Focus on gathering their perspective and needs

Surveying Spanish-Speaking Operators

Jorge F. Rodriguez

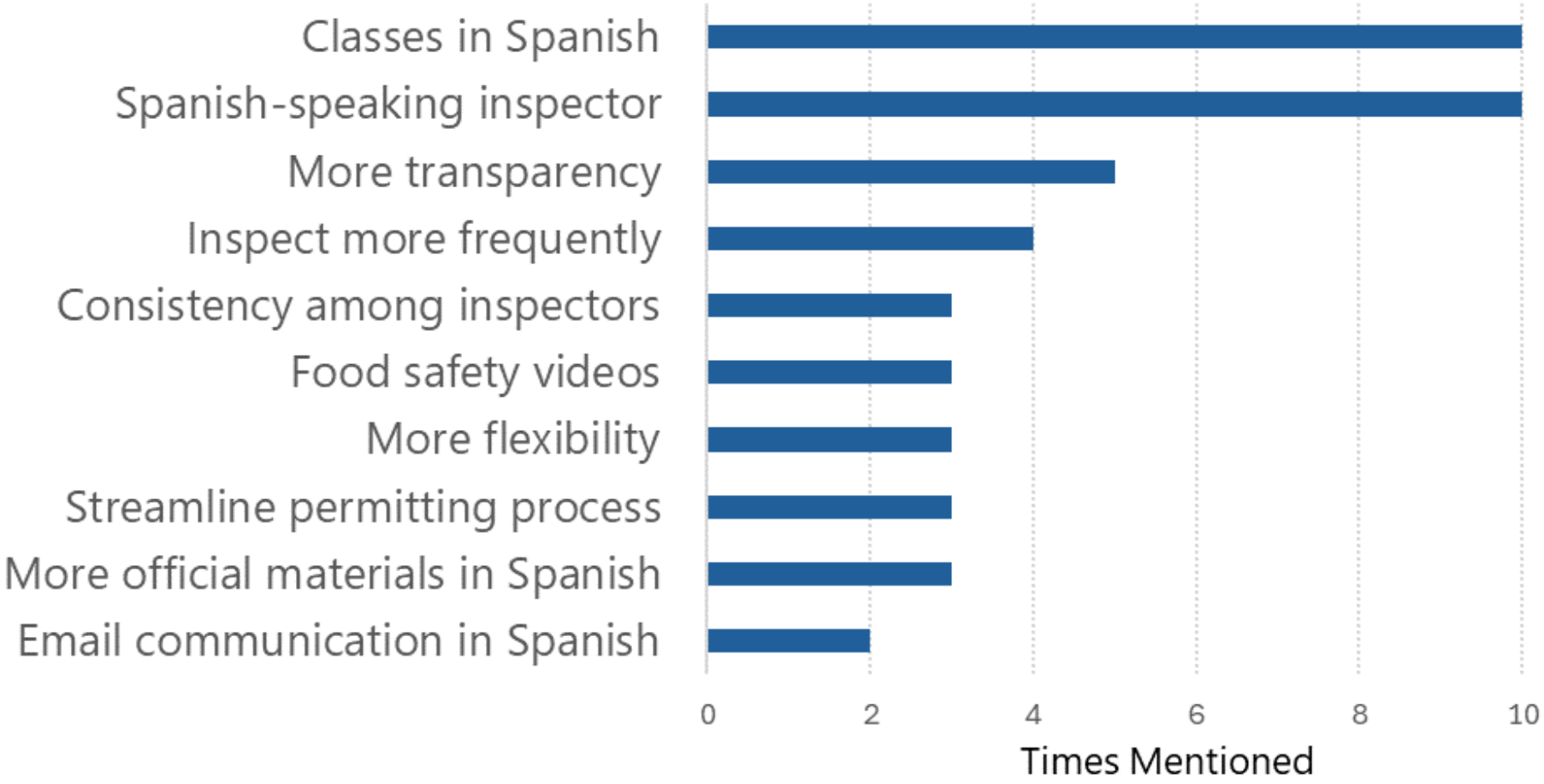
- Skagit County Public Health
- Master of Public Health Practicum July – Oct 2026

30 In-person and phone interviews

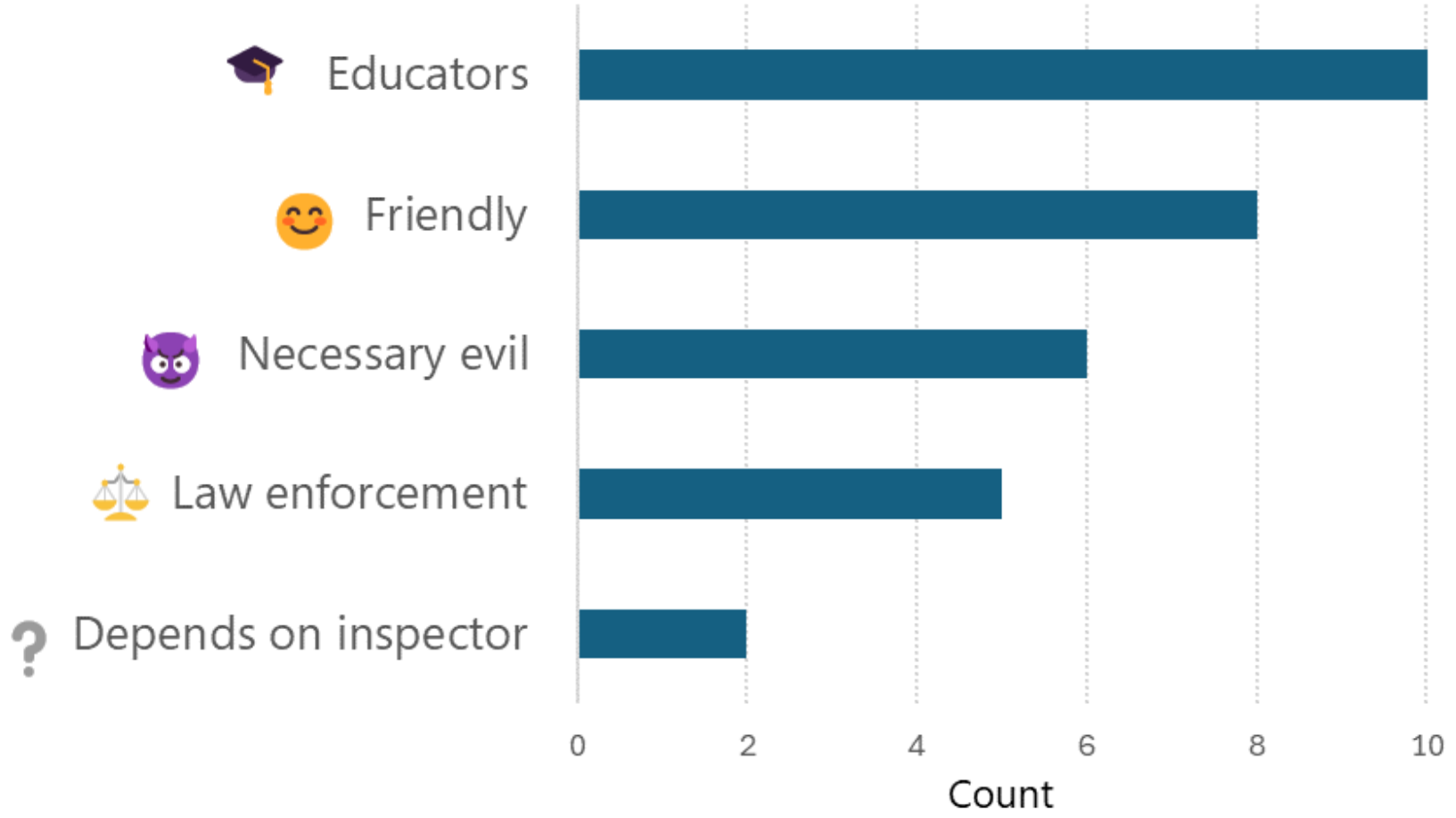
- What mode do operators normally use to communicate with inspectors?
- What communication barriers do operators encounter?
- Can WCHCS provide better resources and service to ESL facilities?
- Have operators noticed our increased focus on education?

Final results expected end of October

Requested Resources

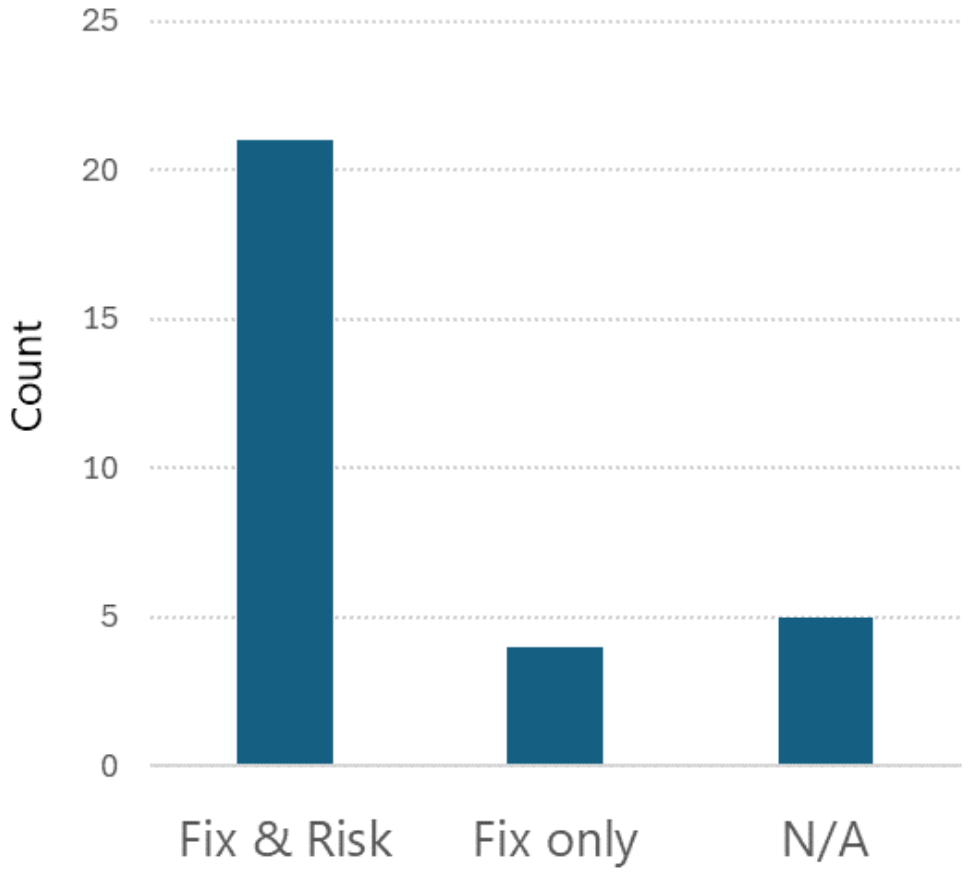


Perception of Inspectors



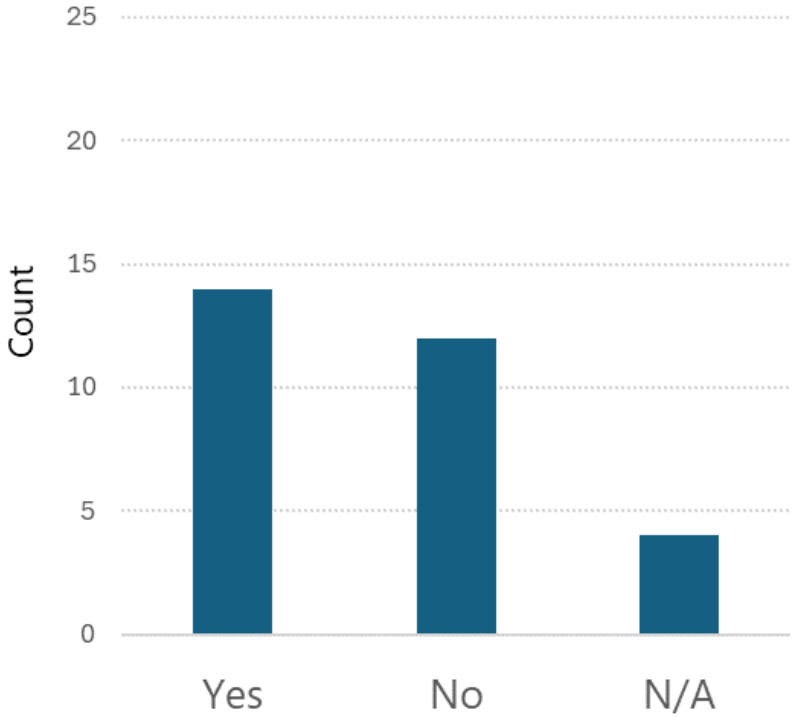
My Inspector Explains

- What I need to **fix** to correct a violation.
- The **risk** associated with the violation.



Messaging

- Have you noticed your inspector focusing more on education over enforcement?



Conclusions

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Compliance rates are improving!

- It can take more inspector time & effort to get to approval

Non-English-fluent operators need more attention

- Point of pride to not use an interpreter

Staff training, consistency of enforcement

- How will standardization affect our work?

New Leadership in Q4 2026

- Will a new supervisor change our priorities and focus?



Food Supervisor Wanted! Applications close 10/18/26
Visit WSBRS or Whatcom County sites for job posting.

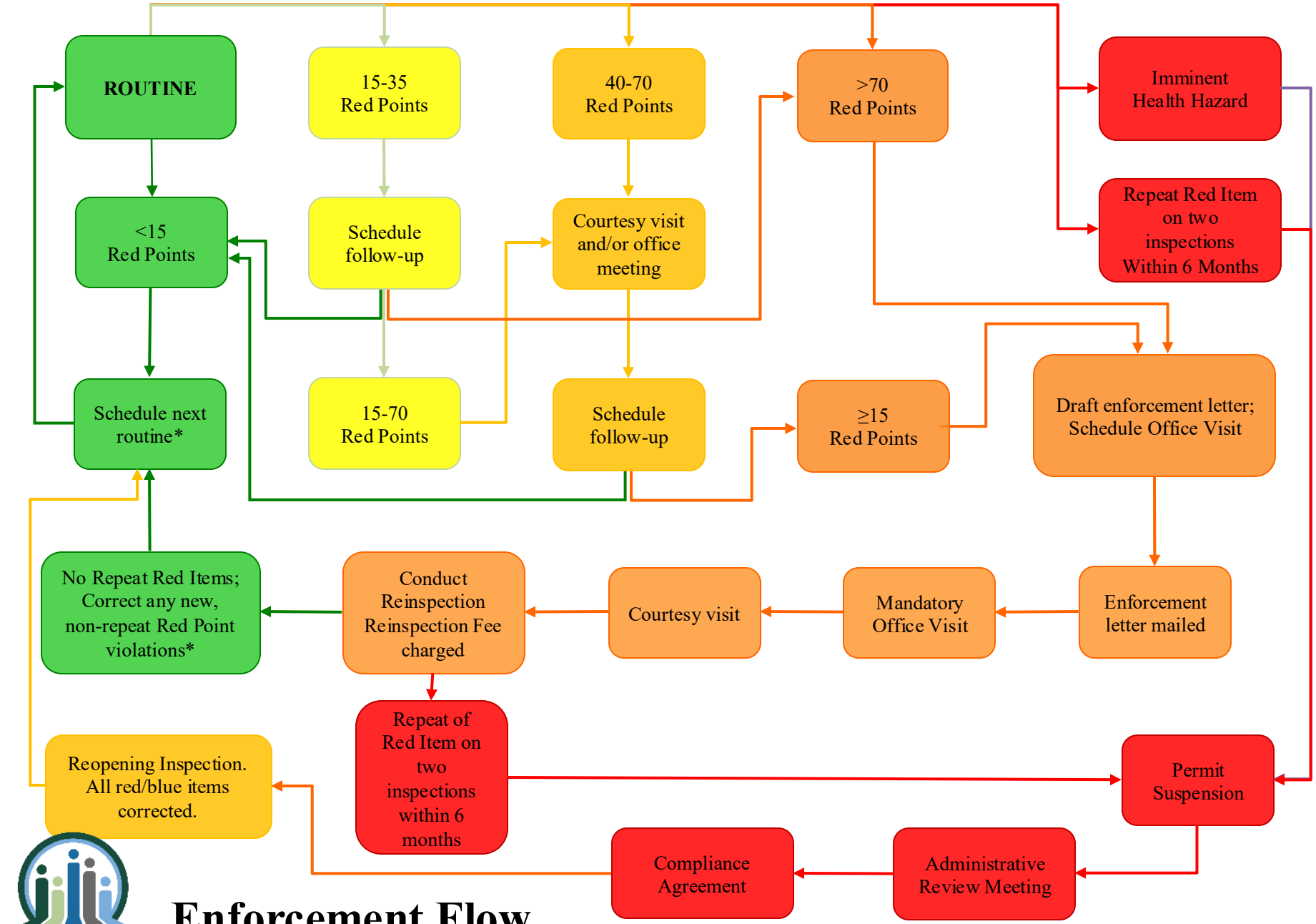
Questions?



WCHCS Food Team with our NACCHO mentors from Reno, NV (2025)

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Enforcement Flow Jan 2024 - Present

* If a reinspection results in new Red Items the next routine should be scheduled based upon the new result (follow-up or reinspection required).

Credits

Image Sources

County Map: https://washeriffs.org/counties/whatcom-county/

Covid image: https://www.ama-assn.org/public-health/infectious-diseases/sars-cov-2-covid-19-resources

Star Trek image: https://www.bulsuk.com/2014/06/microsoft-creates-universal-translator.html