



Rural Oregon Immunization Initiative (ROII): Influences of Rurality on the Delivery of Early Childhood Immunizations

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Oregon Rural Practice-based Research Network



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Oregon Rural Practice-based Research Network at Oregon Health & Science University

- Founded in 2002
- All rural
- 130 clinicians
- 37 practices in 30 communities

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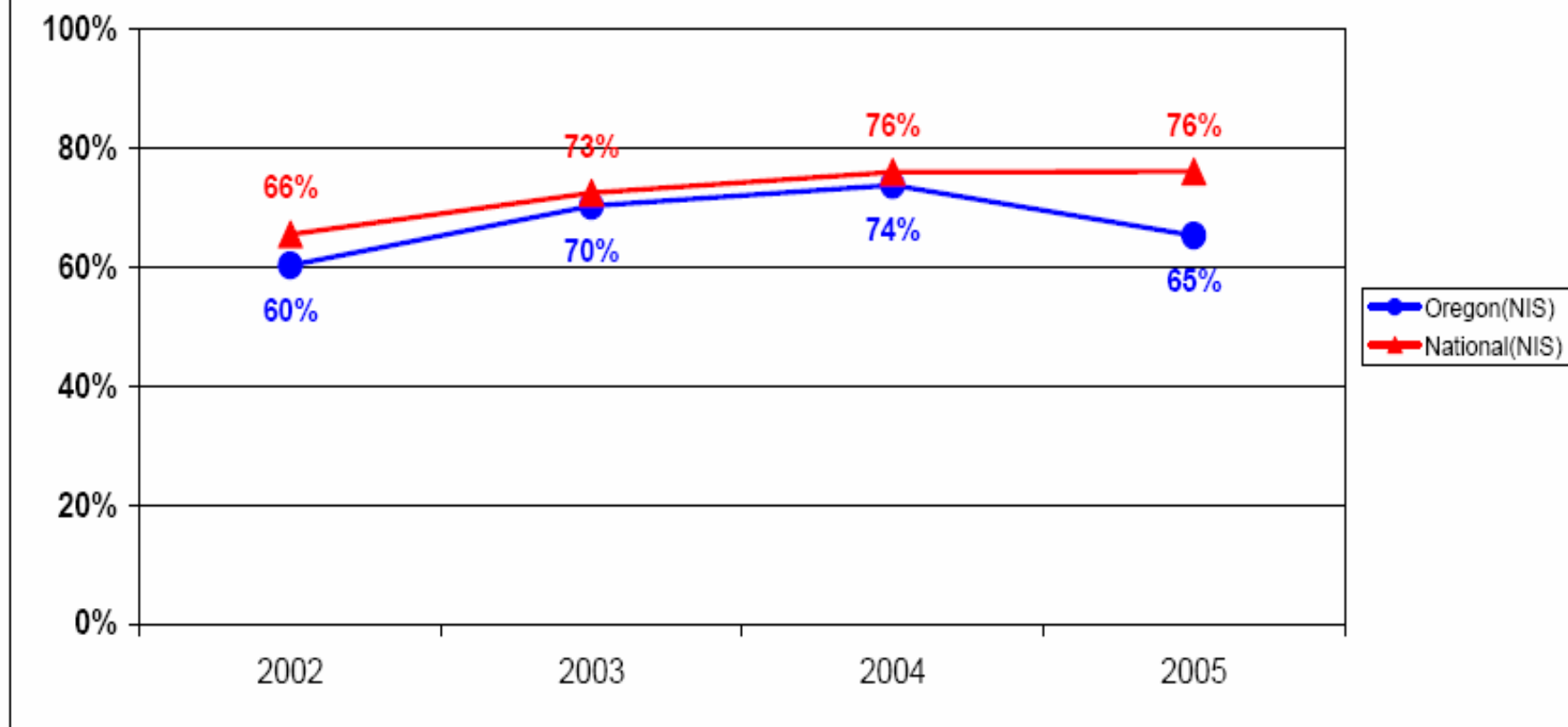


Background

- ROII began in 2003—Phase 1 December 2004; Phase 2, early 2005
- Collaboration with the Oregon DHS Immunization Program
- Oregon immunization rate for 4:3:1:3:3:1 is 65% for two-year old children
- DHS immunization enhancement programs include ALERT and AFIX
- Lack of an assessment of current immunization practices and attitudes in rural Oregon



Immunization Series Rates for 4:3:1:3:3:1* National Immunization Survey, 2002-2005



Source: National Immunization Survey conducted by CDC.

*431331 is shorthand for 4 DTaP, 3 polio, 1 MMR, 3 hib, 3 hepatitis B, and 1 varicella immunizations.



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ROII Mixed Method Approach: (modified) Explanatory Model

Phase 1: Quantitative
Survey
(n= 1,158)



Phase 2: Qualitative
Assessment
(11 practices)

•*Data Collection Completed*
•*Analysis in process*

Phase III:
Participatory
Process

•*Ongoing*



Phase 1 Survey

- A 46-question survey
- 670/1158 rural clinicians completed the survey
- 415 surveys qualified for analysis
- 335 clinicians gave some immunizations
- Survey domains included place, feasibility, coordination, responsibility and evidence-based practice
- Planned manuscripts include “best practices”, specialty comparison, use of ALERT, and the concept of the Medical Home in rural practice

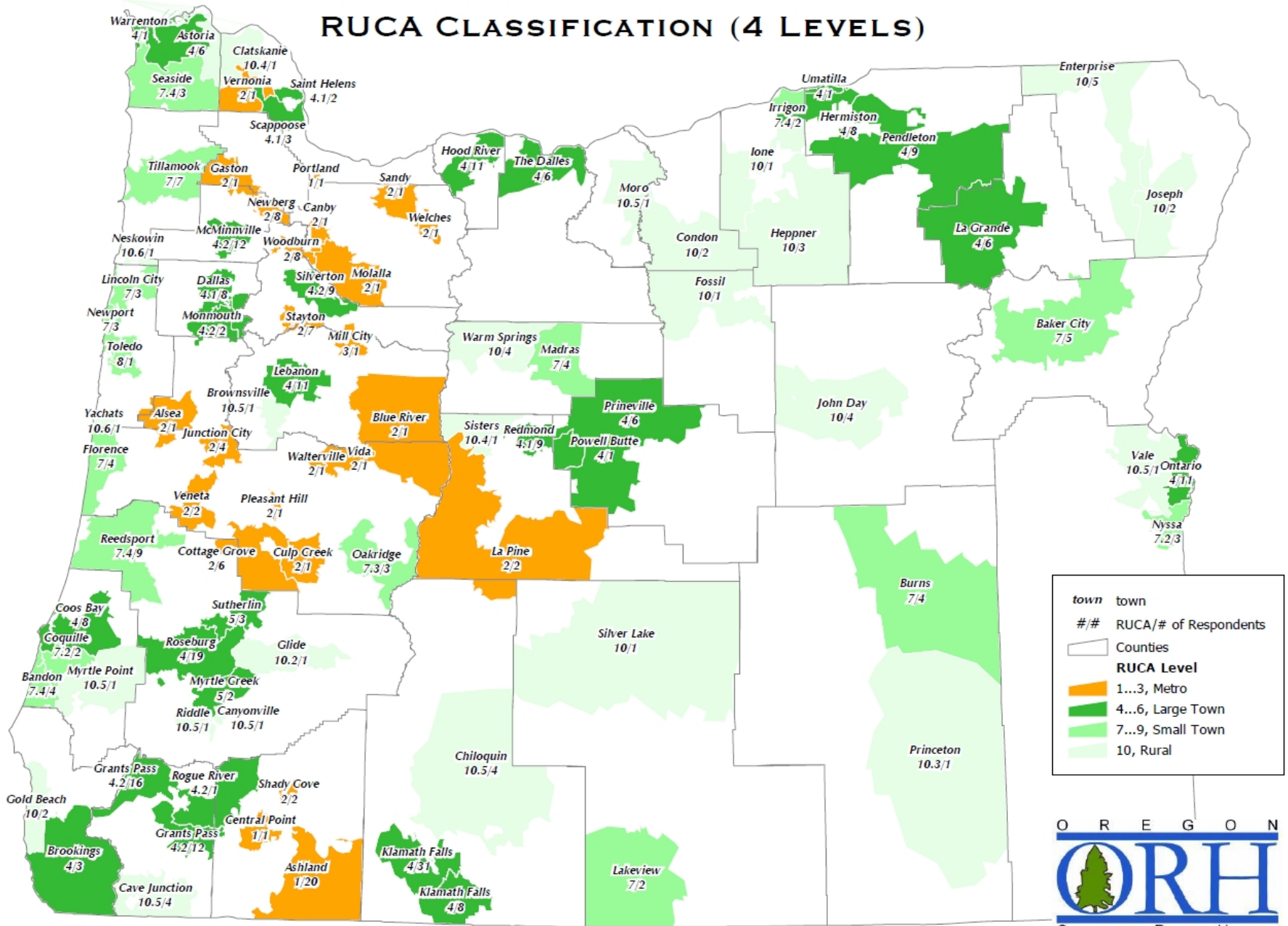


RUCA Categories used for Rurality Analysis

- 1—Metro area core (>50,000)
- 2—Metro area, high commute
- 3—Metro area, low commute
- 4—Large town core (10,000-49,999)
- 5—Large town, high commute
- 6—Large town, low commute
- 7—Small town core (2,5000-9,999)
- 8—Small town, high commute
- 9—Small town, low commute
- 10—Rural area (<2,500)



ORPRN SURVEY RESPONDENTS BY RUCA CLASSIFICATION (4 LEVELS)



Patients Provided With Immunizations N=407

| | Urban N (%) | Large Rural N (%) | Small Rural N (%) | Isolated Rural N (%) | Chi- Square |
|-------------|----------------|-------------------------|-------------------------|----------------------------|----------------|
| All | 43 (58%) | 83 (37%) | 18 (30%) | 14 (30%) | 0.001 |
| Some | 28 (38%) | 102 (45%) | 27 (46%) | 20 (43%) | |
| None | 3 (4%) | 42 (18%) | 14 (24%) | 13 (28%) | |



Influence of Vaccine Storage & Stocking on Reasons to Refer N=144

| | Urban N (%) | Large Rural N (%) | Small Rural N (%) | Isolated Rural N (%) | Chi- Square |
|--------------------------|----------------|-------------------------|-------------------------|----------------------------|----------------|
| Important | 8 (38%) | 14 (17%) | 13 (59%) | 8 (44%) | 0.000 |
| Not Important | 13 (62%) | 69 (83%) | 9 (41%) | 10 (56%) | |



Inadequate Reimbursement as a Reason for Referral

| | Urban N (%) | Large Rural N (%) | Small Rural N (%) | Isolated Rural N (%) | Chi- Square |
|--------------------------|----------------|-------------------------|-------------------------|----------------------------|----------------|
| Important | 8 (40%) | 34 (39%) | 11 (50%) | 8 (47%) | 0.779 |
| Not Important | 12 (60%) | 53 (61%) | 11 (50%) | 9 (53%) | |



Use of ALERT

| | Urban N (%) | Large Rural N (%) | Small Rural N (%) | Isolated Rural N (%) | Chi- Square |
|--|----------------|-------------------------|-------------------------|----------------------------|----------------|
| Submit data to ALERT-Yes | 38 (56%) | 141 (76%) | 32 (71%) | 25 (76%) | 0.051 |
| Access ALERT-Yes | 28 (43%) | 127 (71%) | 35 (78%) | 22 (65%) | 0.000 |
| Uses ALERT to track imm. status | 25 (36%) | 111 (60%) | 28 (62%) | 24 (71%) | 0.001 |

- Not using ALERT is associated with non-participation in VFC
- 13% of clinicians were not aware that data was being submitted to ALERT



Access Issues

| | Urban N (%) | Large Rural N (%) | Small Rural N (%) | Isolated Rural N (%) | Chi-Square |
|--|-----------------------|-----------------------------|-----------------------------|--------------------------------|-------------------|
| Participate in VFC-Yes | 54 (90%) | 147 (87%) | 33 (82%) | 29 (91%) | 0.684 (Fisher) |
| Practice is Physician Owned | 38 (51%) | 137 (64%) | 28 (48%) | 17 (39%) | 0.004 |
| Specialty: FM/Peds | 68/8 (89%/11%) | 175/46 (79%/21%) | 55/3 (95%/5%) | 42/4 (91%/9%) | 0.005 (Fisher) |
| No restrictions to new patients | 43 (62%) | 120 (56%) | 46 (84%) | 39 (91%) | <.0001 |



Immunization Delivery Opinions

| | Urban N (%) | Large Rural N (%) | Small Rural N (%) | Isolated Rural N (%) | Chi- Square |
|--|----------------|-------------------------|-------------------------|----------------------------|----------------|
| Safety of immunizations concerns me-agree | 24 (24%) | 51 (28%) | 11 (26%) | 7 (21%) | 0.532 |
| Immunizations are the main parent reason for WCC-agree | 41 (61%) | 128 (70%) | 33 (77%) | 16 (48%) | 0.031 |
| I need more info on vaccine safety-agree | 16 (24%) | 21 (12%) | 6 (14%) | 2 (6%) | 0.044 |



Factors/Ideas to Improve Immunization Coverage

(grouped from 223 open-ended responses given)

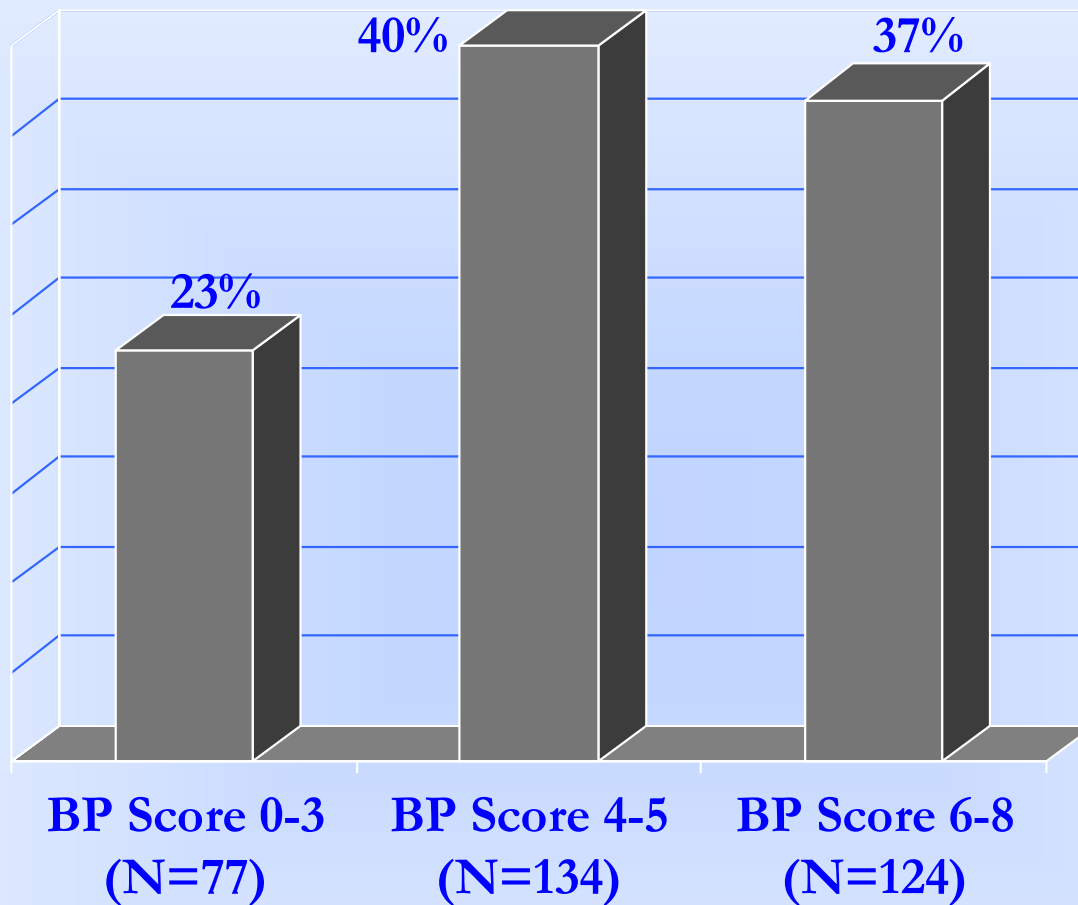
| | Number |
|--------------------------------|--------|
| ▪ Tracking systems | 93 |
| ▪ Patient education/compliance | 40 |
| ▪ Reimbursement | 36 |
| ▪ Vaccine supply/storage | 8 |
| ▪ Practice policies/standards | 9 |
| ▪ Pediatric volume | 6 |
| ▪ Paperwork/regulations | 6 |



“Best Practices” Variable

- Give as many immunizations as indicated
- Provide vaccination-only visits
- Screen at all visits for immunization status
- Participate in VFC
- Have conducted a review of immunization status of patients
- Have system to identify child behind on immunizations
- Send out patient reminders (phone or mail)
- Document vaccinations provided outside the clinic

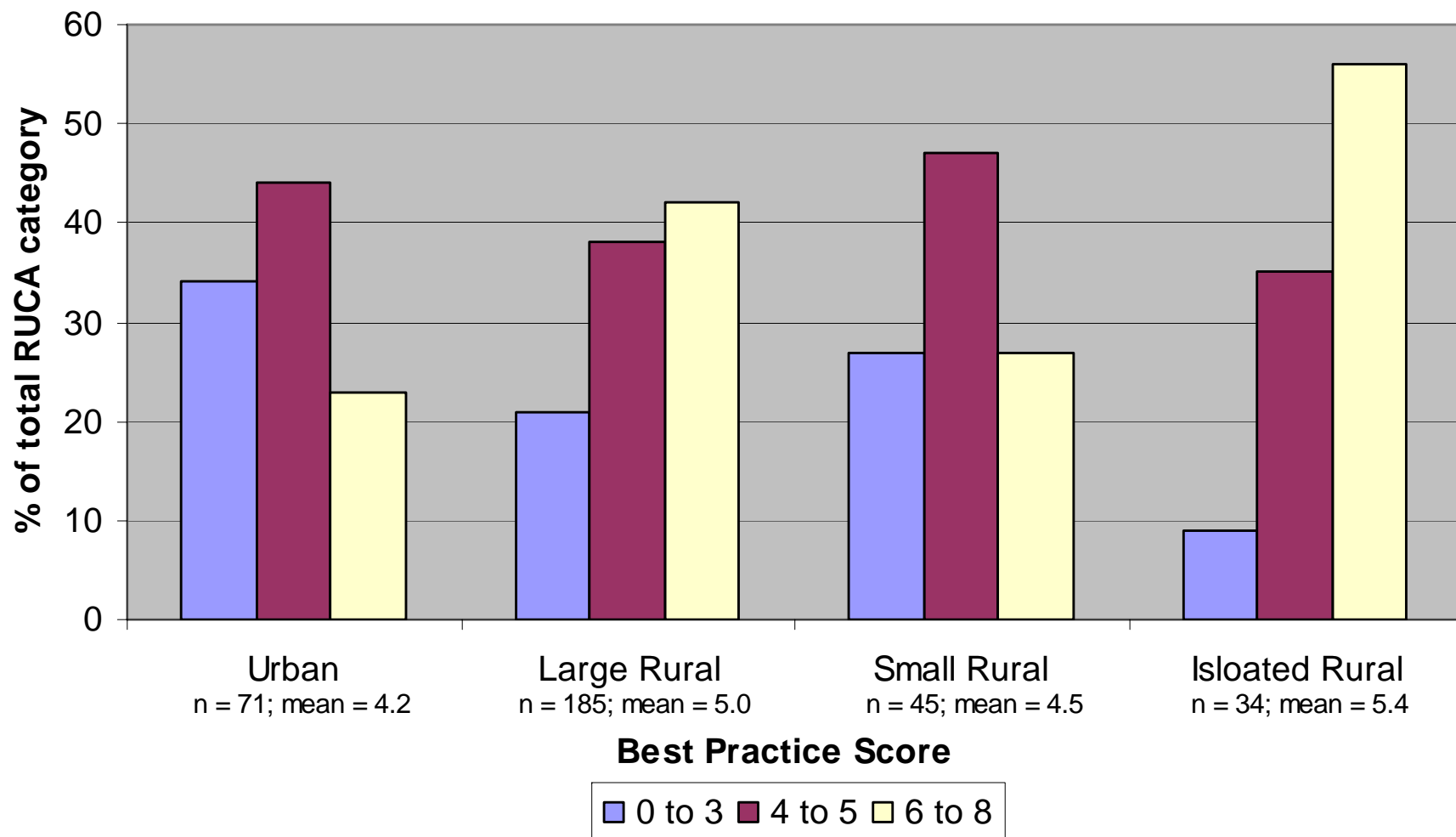




Best Practice Score Distribution (N=335)



Best Practice Score Distribution by RUCA



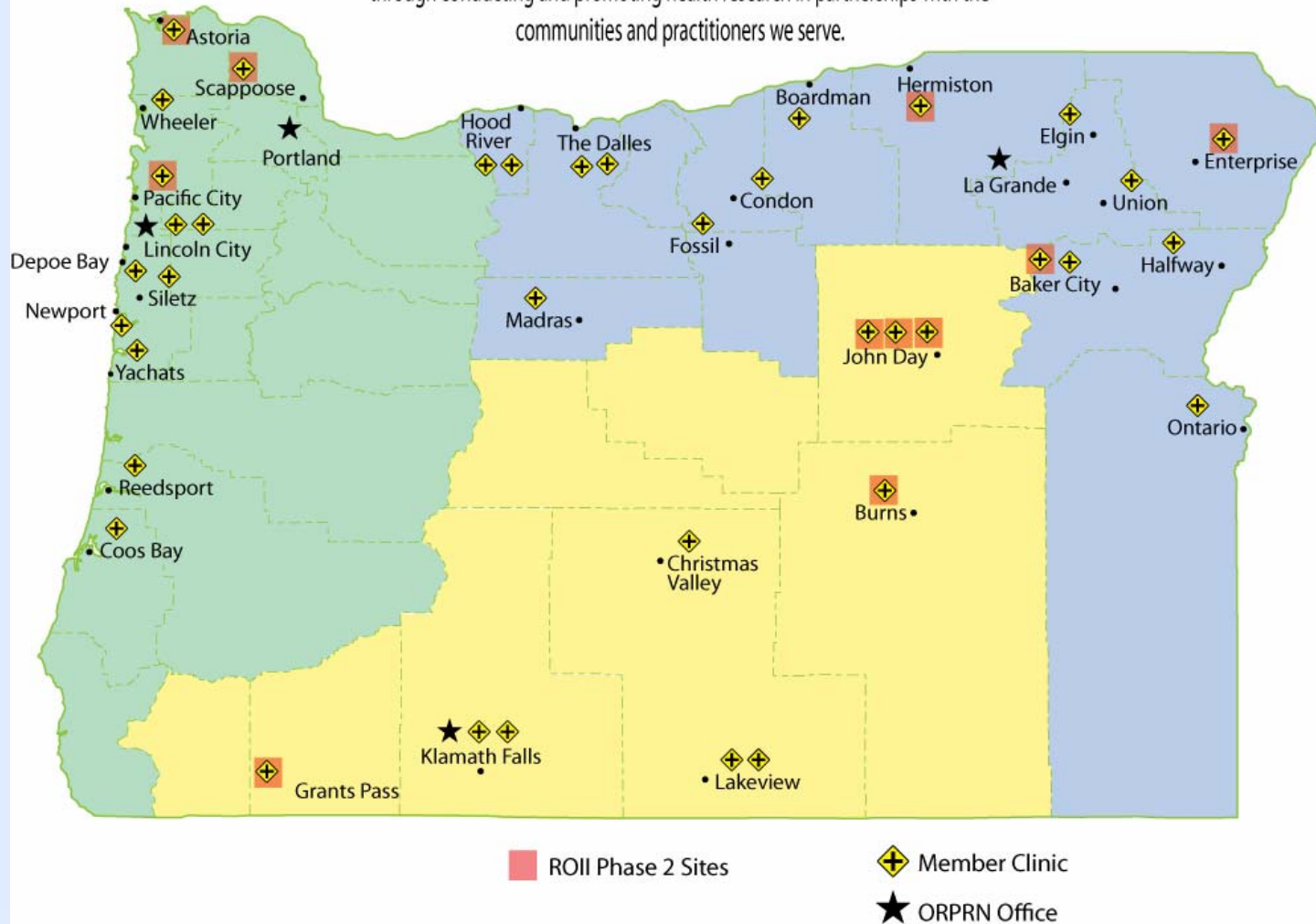
Phase 2 Methods

- 11 practices/30 clinicians
- Chart Review (100/practice) using COCASA software to determine immunization rates (4:3:1:3:3) of children ages 19 to 35 months
- ALERT immunization rate report
- Direct Observation: appointment scheduling, visit, vaccine specific information
- Key informant interviews—clinicians, clinic staff, local public health department staff
- Focus groups of parents



Oregon Rural Practice-Based Research Network

The mission of ORPRN is to improve the health of rural populations in Oregon through conducting and promoting health research in partnerships with the communities and practitioners we serve.



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Phase 2 Practices' Immunization Rates--ALERT

| Practice Site | County | RUCA Code | # of records analyzed— 19-35 months | 4:3:1:3:3 UTD Rate |
|---------------|-----------|-----------|--|--------------------------|
| A | Clatsop | 4.0 | 18 | 50% |
| B | Umatilla | 4.0 | 64 | 52% |
| C | Wallowa | 10 | 38 | 55% |
| D | Josephine | 10.5 | 33 | 52% |
| E | Tillamook | 10.6 | 103 | 58% |
| F | Columbia | 4.1 | 70 | 50% |
| G | Harney | 7.0 | 52 | 56% |
| H | Grant | 10 | 21 | 57% |
| I | Grant | 10 | 33 | 36% |
| J | Grant | 10 | N/A | N/A |
| K | Baker | 7.0 | 20 | 55% |
| Total | | | | |

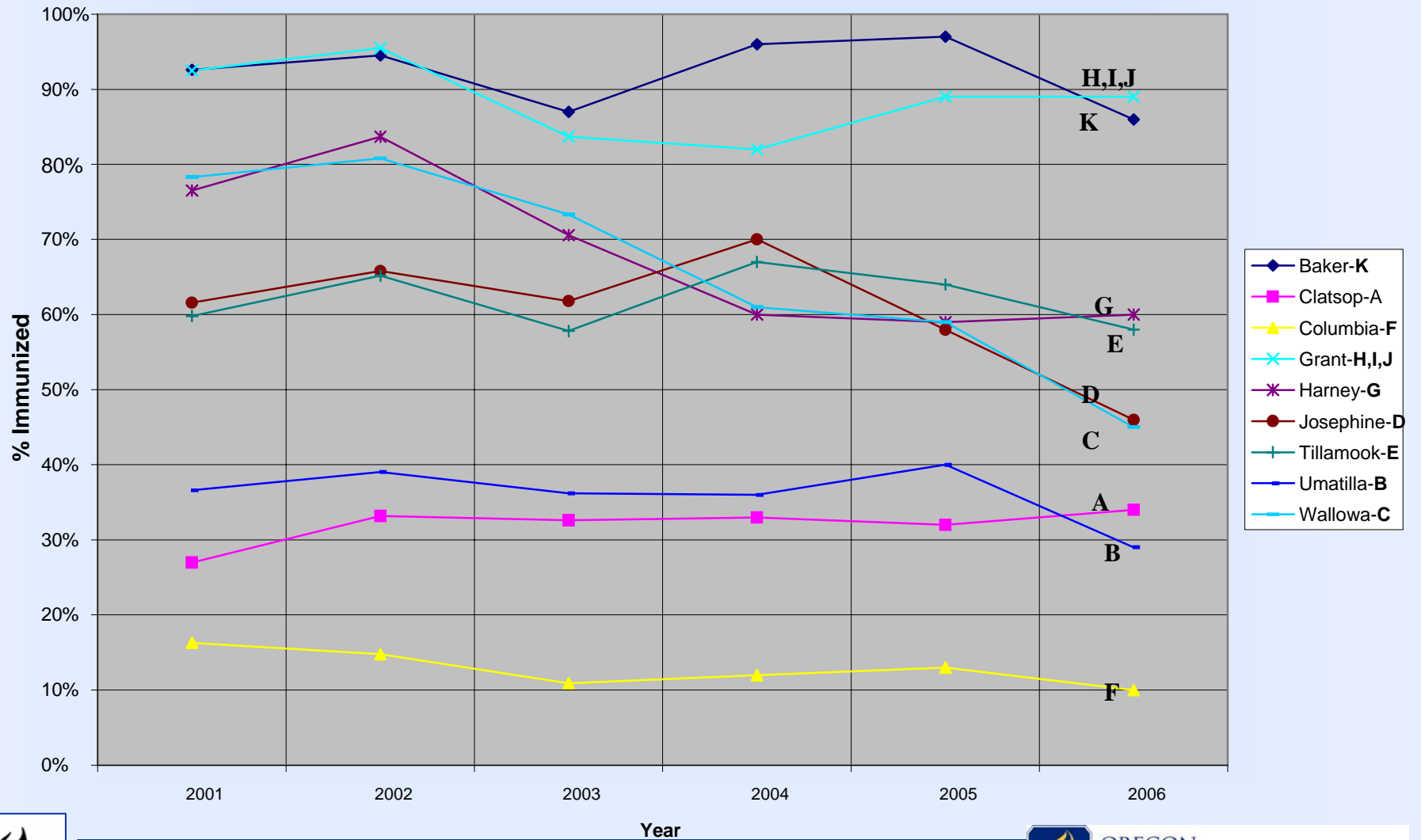


Percent of Clients Immunized by OR County Health Depts: 2001-2006

Children 12-35 months of age.

Calculations not adjusted by in and out migration in a county.

NOTE: Percentage obtained by dividing the number of children served by the number of resident births.
The source for resident births is the Oregon Center for Health Statistics.



Figuring it Out: Immunization Responsibility

Phase 1 Provider Survey Findings:

- “Receipt of immunizations is the main reason that parents come for well child care”
- Majority (67%) agreed

Phase II Assessment:

- Different emphasis in parent focus groups: “right track”
“I think it’s nice to know that they’re growing properly, that you’re kind of on the right track.”
- Implications for responsibility of tracking immunizations



Figuring it Out: Immunization Responsibility

Parents:

“Send a postcard that it’s time. I mean, just like when I take my animals to the vet, I always get a postcard from them telling me when my animals’ shots come due—not to compare my kids with animals, but you get them from the dentist when it’s time for your appointment, or it’s time for a check-up.”

“Probably remembering what the schedule is. I have to ask every time I come in, “Are we due for anything on this visit? Or what’s up next, and when?” It’s just not part of what I’m thinking about every day, since they are so far apart.”



Figuring it Out: Immunization Responsibility

Clinician:

“I think that if parents were more responsible for it, and if they were maybe well informed how important it is for them to get it, it might be a lot better. I think a lot of it is just a lack of knowledge that the parent has of knowing that the child needs shots at certain dates. There’s only so much we can do before the parents need to really step in and say, ‘Okay.’”



Figuring it Out: Immunization Responsibility

Parents:

- Feel responsible, want reminders
- Competing demands, complex immunization schedules affect adherence

Providers:

- Perceive immunizations as principal reason for well child care
- Also feel obligated to be responsible; want parents to be more aware of schedule
- Limited capacity to produce reminders



Figuring it Out: Immunization Safety Responsibility

Phase 1 Survey Findings:

- 28% agreed that the “Safety of Immunizations Concerns Me”

Phase II Assessment:

- Parents: safety a consistent concern; relationship with provider cited as important
- Providers: challenge of counseling and referral of “refusers”

Education: who should provide it and how...?

Safety concerns among providers: need further exploration



Figuring it Out— Coordination (ALERT)

Phase 1 Survey Findings:

- 71% report submitting data to ALERT registry
- 66% report accessing ALERT registry

Phase II Assessment Questions/Findings:

- Experience of ALERT in practice
- Generally perceived as low to moderate burden
- ALERT part of immunization safety net toolkit
- Knowledge and usage of ALERT varies
- Communication Issues—usage of ALERT



Figuring it Out— Coordination (ALERT)

County Health Officer:

“You know, we used to. Every time one of their patients came in and got an immunization, we would make a printed copy and give it to them. And we’ve kind of backed away from that now, because they have access to ALERT, and any time they want to know where their child is, they can look it up and it’s right at their fingertips. And sometimes they still do call and say, ‘So-and-So’s here. What have they had?’ and we’re gracious enough to give ‘em the information, instead of saying, ‘Well, did you check ALERT?’”

Clinician:

“Nope, the only time there’s communication is when they show up in our office, and we call over there and ask them to send those records, or we look up on the ALERT website. There’s no communication between the health department telling us that our kids are over there getting immunized. And that would help. I mean, if they were seeing kids and asked the families to say, you know, ‘Who’s your primary provider?’ and send records just automatically, that would be hugely helpful, but that doesn’t happen, no.”



Figuring it Out— Coordination (ALERT)

Researcher: So, there's no real quick way just to check medical records here?

Provider 1: Not unless.... I don't know if there's something on the Internet, where you can just type in a child's name, go to a website and type in and see what they've had. I don't know if there's anything available on the Internet that has quick access.

Provider 2: There is.

Provider 1: There is? To get a particular....

Provider 2 : To get the Immunization Alert.

Provider 1: Where we can just pull right off the Internet, or they still have to fax it to us?

Provider 2: Either way, you can pull it right off. It sounds like we've got an internal education problem here...



Figuring it Out– Feasibility

Clinician: *"Influenza is an embarrassment to the system, because we order every year, we cannot get it, yet the grocery stores—we have to send our patients to the grocery store! It's horrendous. And elderly that hardly get out, we should be able to give them an immunization. For godsake, we should be able to give them immunizations in our office, and we're the last people on the priority list to get them."*



Figuring it Out— Place

Medical Home— relevance and feasibility

- Differing models of immunization delivery in primary care practices:
 - Comprehensive—all immunizations
 - Mixed—Health department sets up immunization clinic within clinic
 - No immunization delivery
- Patients report competence at navigating system:
 - Variations in insurance coverage, co-pay, access
- County Health Departments provide many services



Figuring it Out— Place

Parent:

“One other benefit, I think, of the well baby checks, as well as tracking them, I like that my girls get a relationship with their doctor, and they just love the doctor, because they’ve gotten an opportunity to build that relationship, so now when they come in for shots, they know the nurses really well.”

- Medical Home Models:
 - clinic-based
 - Coordinated but decentralized



Practice Report Themes

- **PLACE:** concept of the Medical Home, County Health Department role
- **COORDINATION:** documentation, communication, registry
- **FEASIBILITY:** stocking, vaccine availability, patient flow, staffing, counseling, reimbursement
- **RESPONSIBILITY:** boundaries between the practice, parent, and health department
- **EVIDENCE-BASED PRACTICE:** the “Best Practice” variable



Current/Next Steps

- Delivery of Practice Reports
- Begin discussions with the practices to develop a set of immunization improvement strategies to adapt at the practice level

