

Use and Impact of Clinical Decision Support for Immunization (CDSi) Resources

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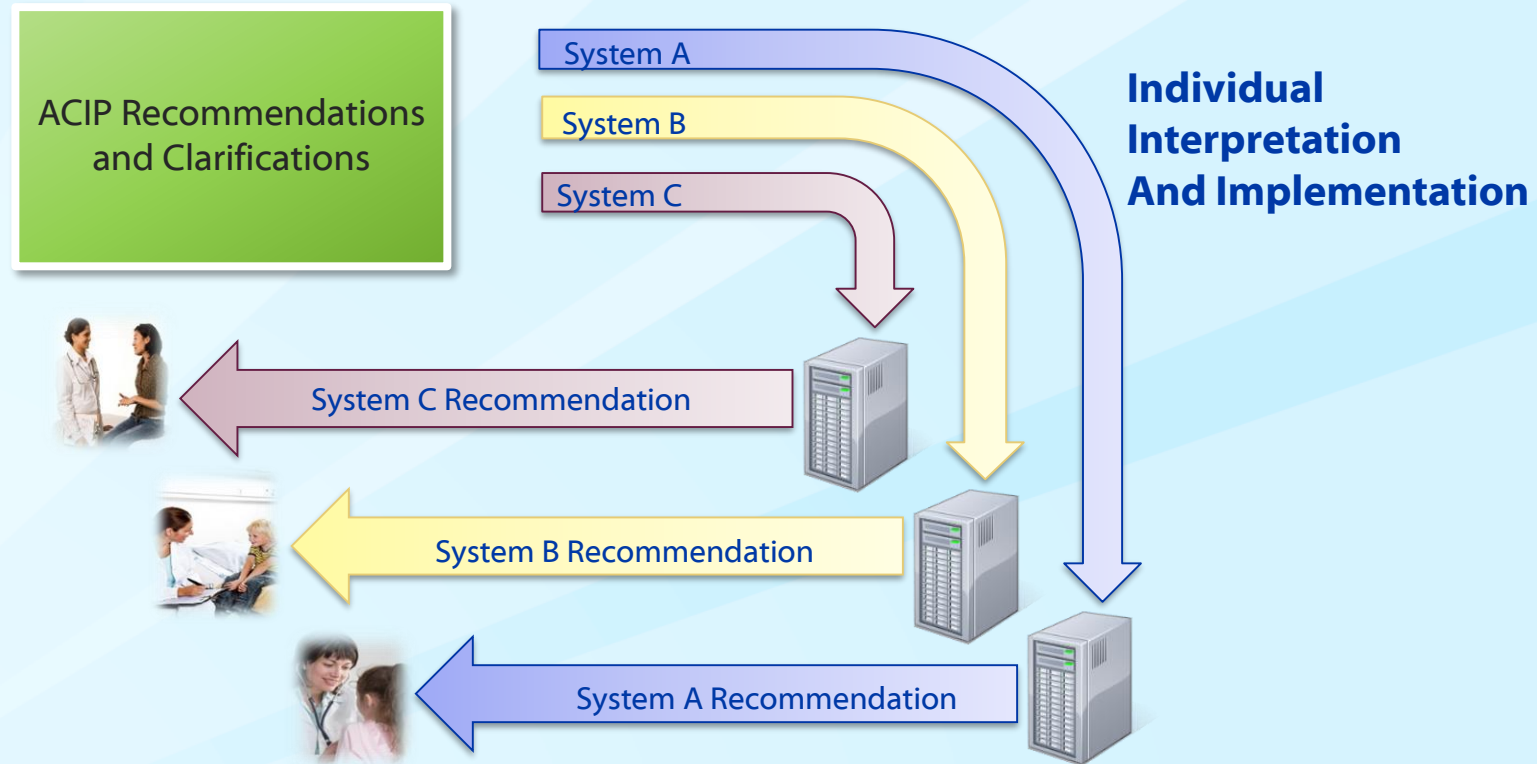
- ❑ Overview of CDSi**
- ❑ Overview of CDSi Evaluation**
- ❑ Results from Online Assessment**
- ❑ Success Case Method**
- ❑ Next Steps**

OVERVIEW OF CDSI

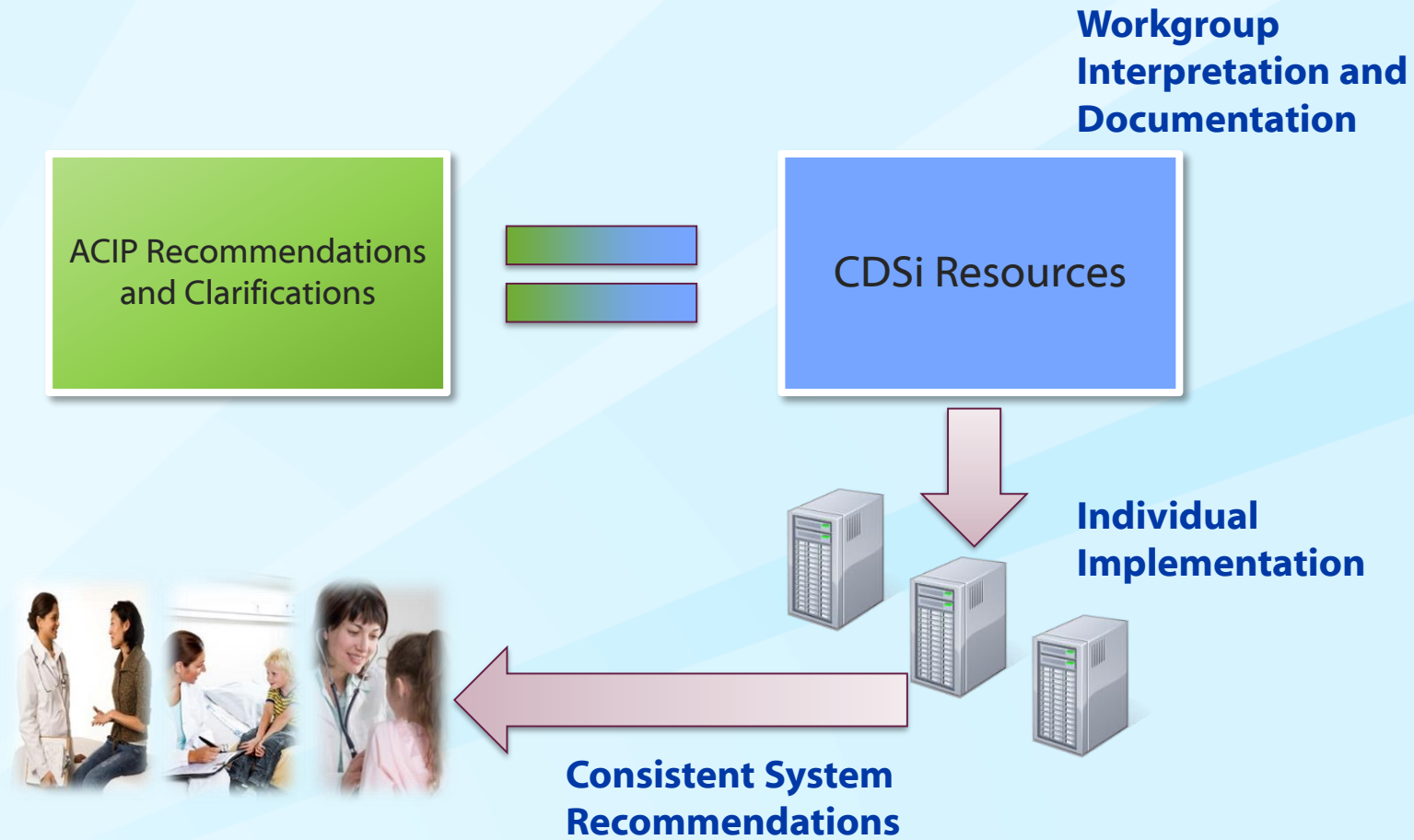
CDSi

- ❑ CDSi = Clinical Decision Support for Immunization
- ❑ CDC created and managed set of resources
- ❑ Designed to map ACIP recommendations into IT-friendly resources
- ❑ Goal = Consistent implementations aligned with ACIP recommendations

Before CDSi

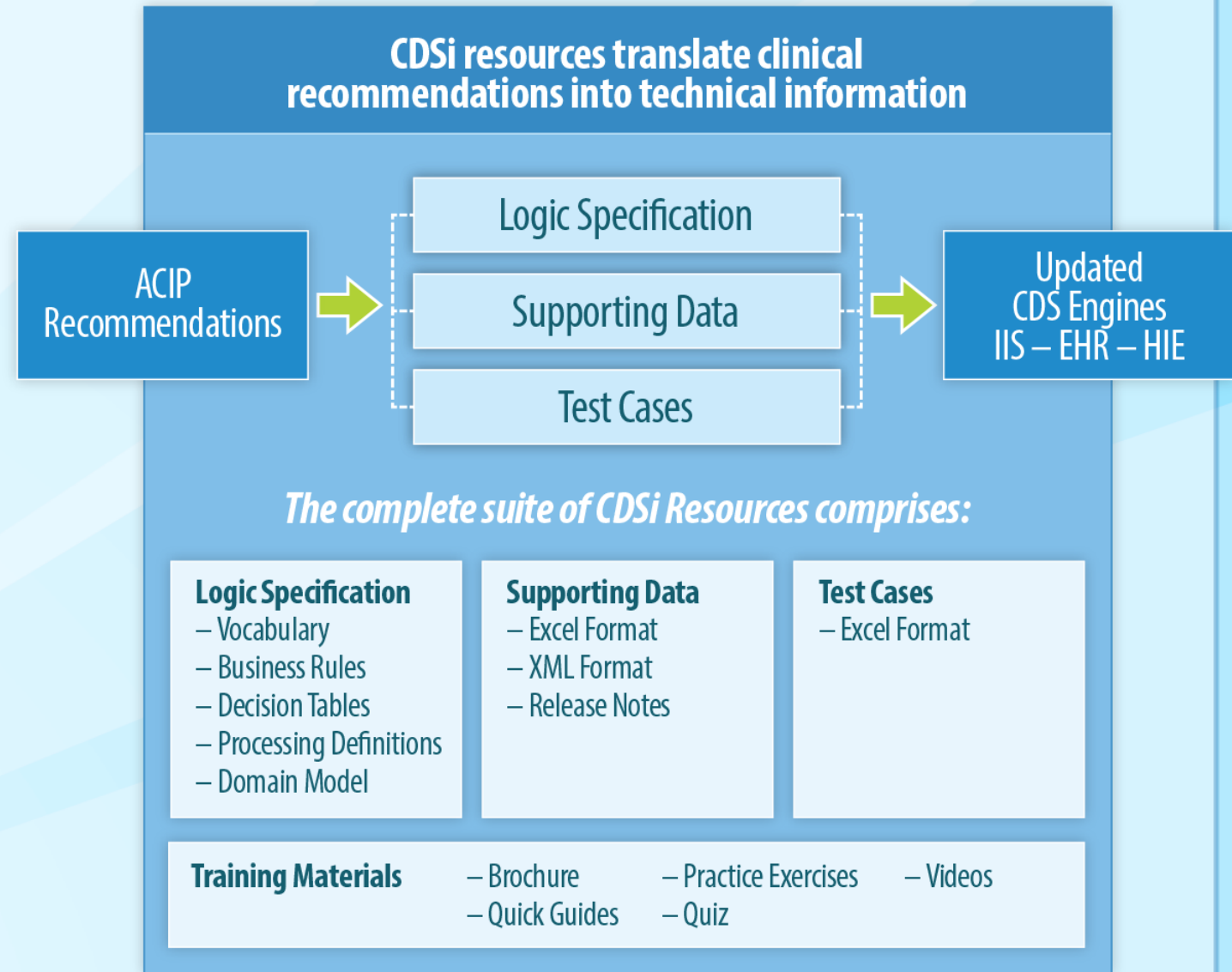


With CDSi



CDSi Resources

- The CDSi project focuses on documenting ACIP recommendations and test cases.
- The CDC does not have or maintain a CDS engine.



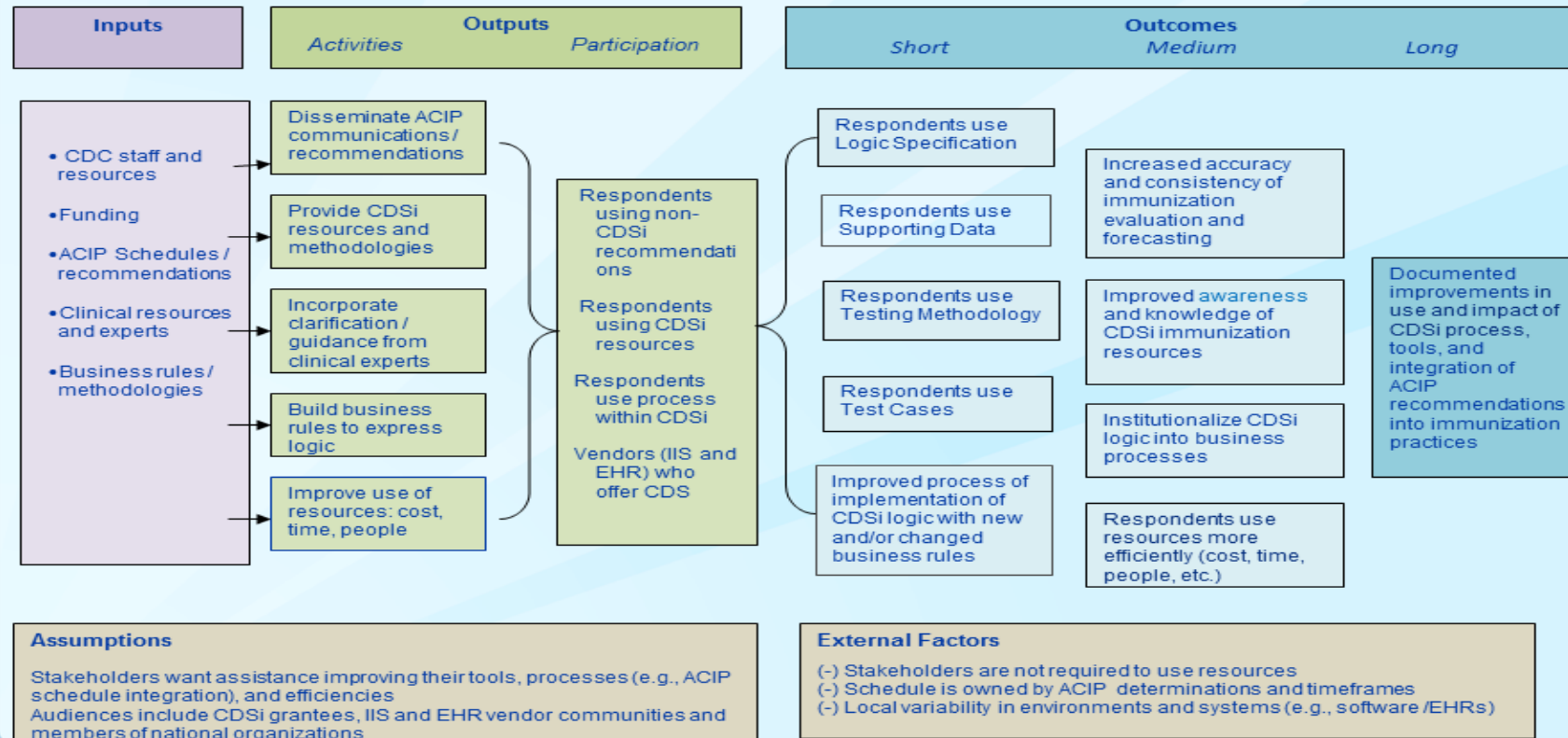
CDSI EVALUATION

CDSi Evaluation



CDSi Evaluation Logic Model

Program: CDSi Childhood Immunization Logic Model
Goal: Determine the uptake and impact of CDSi resources



Online Assessment Survey Methods

- ❑ **Round 1 deployed in January 2015**
- ❑ **Round 2 deployed in January 2016**
- ❑ **Round 3 deployed in January 2018**
- ❑ **Respondents**
 - IIS grantees
 - IIS vendors, EHR vendors, and independent consultants
- ❑ **Survey Methods**
 - Pre-notification email
 - Survey Invitation email
 - Reminder email
 - Final targeted reminder email

IIS Response Rates

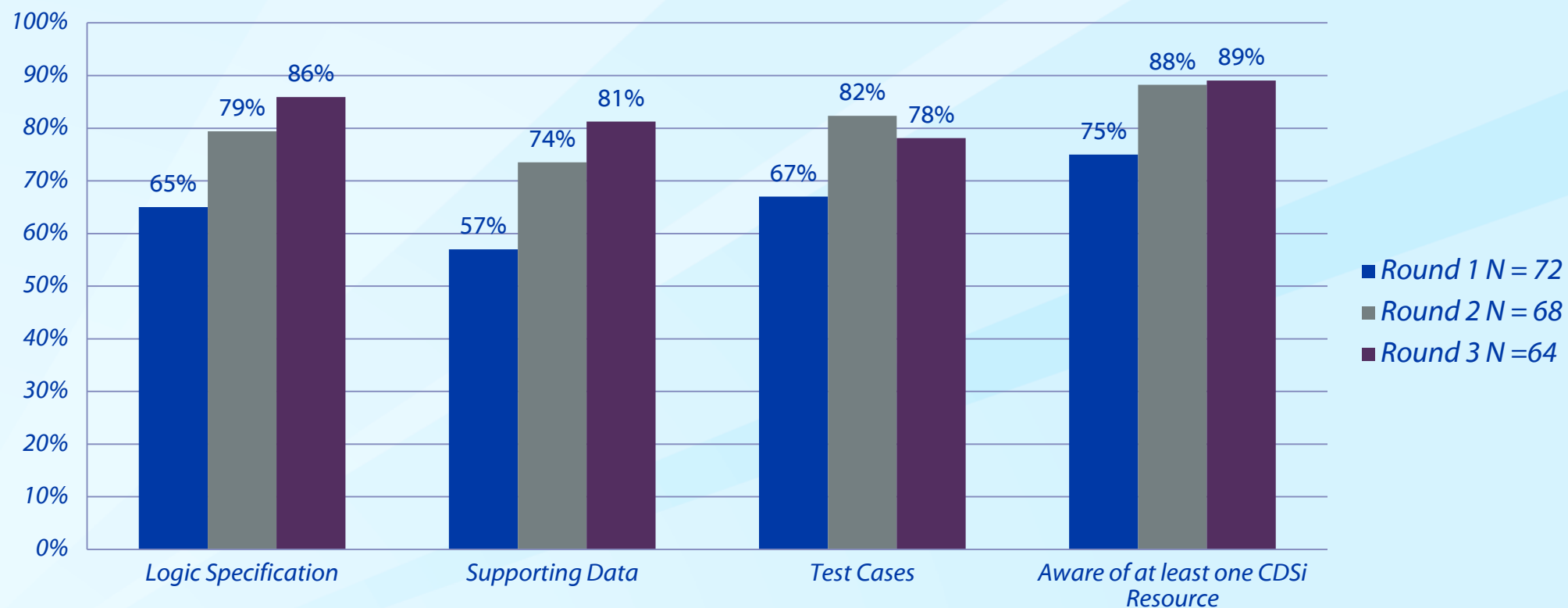
Year	Invited	Responded	Response Rate
Round 1 - 2015	64 States/Territories	Responses from 52 states/territories	81% of states/territories
Round 2 - 2016	64 States/Territories	Responses from 48 states/territories	75% of states/territories
Round 3 - 2018	64 States/Territories	Responses from 57 states/territories	89% of states/territories

IIS Vendors, EHR Vendors, and Independent Consultants Response Rates

Year	Invited	Responded	Response Rate
Round 1 - 2015	26 respondents	11 responses	42% of Vendors
Round 2 - 2016	31 respondents	10 responses	32% of Vendors
Round 3 - 2018	25 respondents	8 responses	32% of Vendors

Online Assessment CDSi Resource Awareness

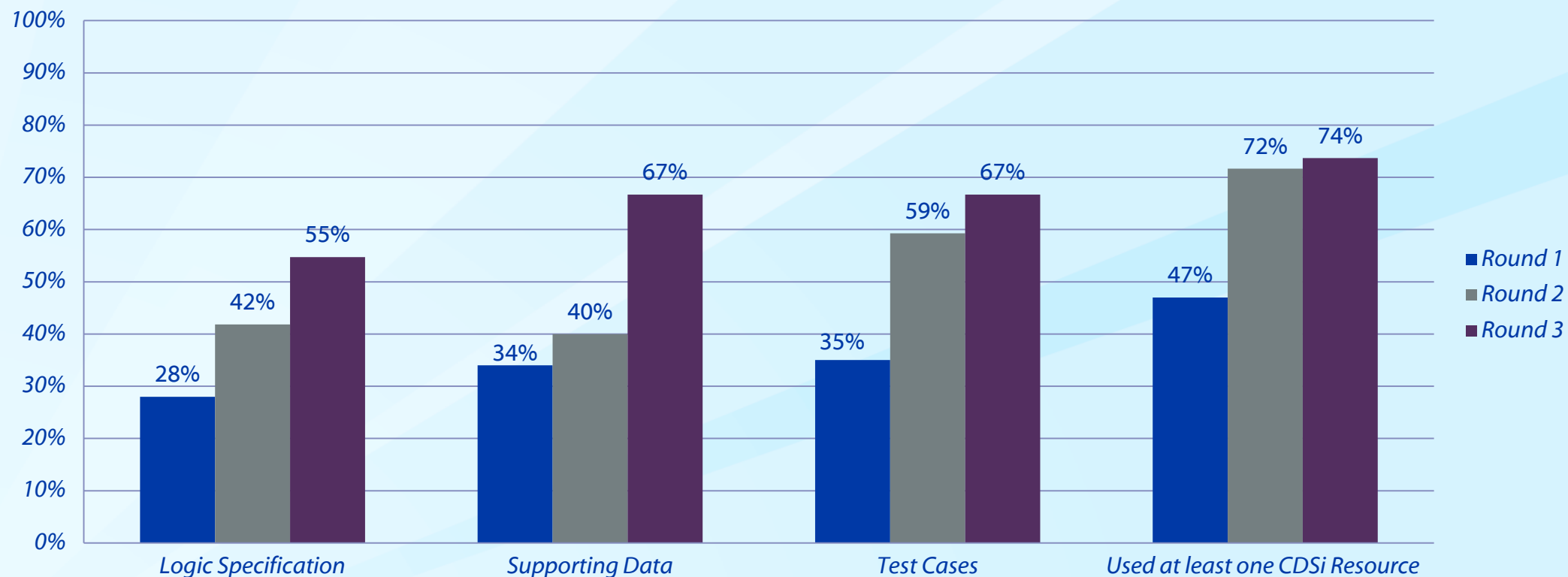
Which of the following have you heard about?



From Round 1 to Round 3 awareness increased for each resource

Use of CDSi Resources

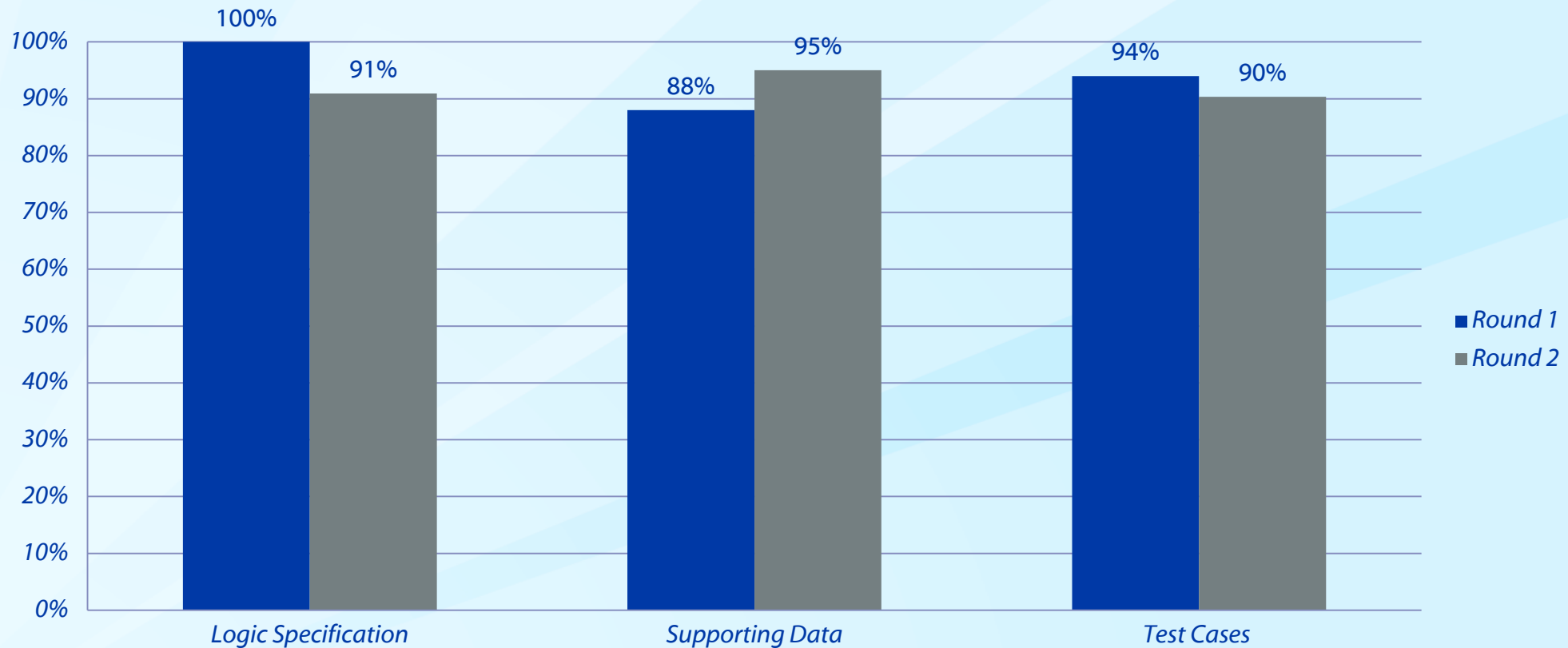
Of those aware of the CDSi Resources,
Have you used the CDSi resources to improve evaluation and forecasting of ACIP
recommendations?



From Round 1 to Round 3 use increased for each resource

CDSi Resources Users Continued Use

Of those who have used the CDSi resources,
Do you plan to use the CDSi resource in the future?



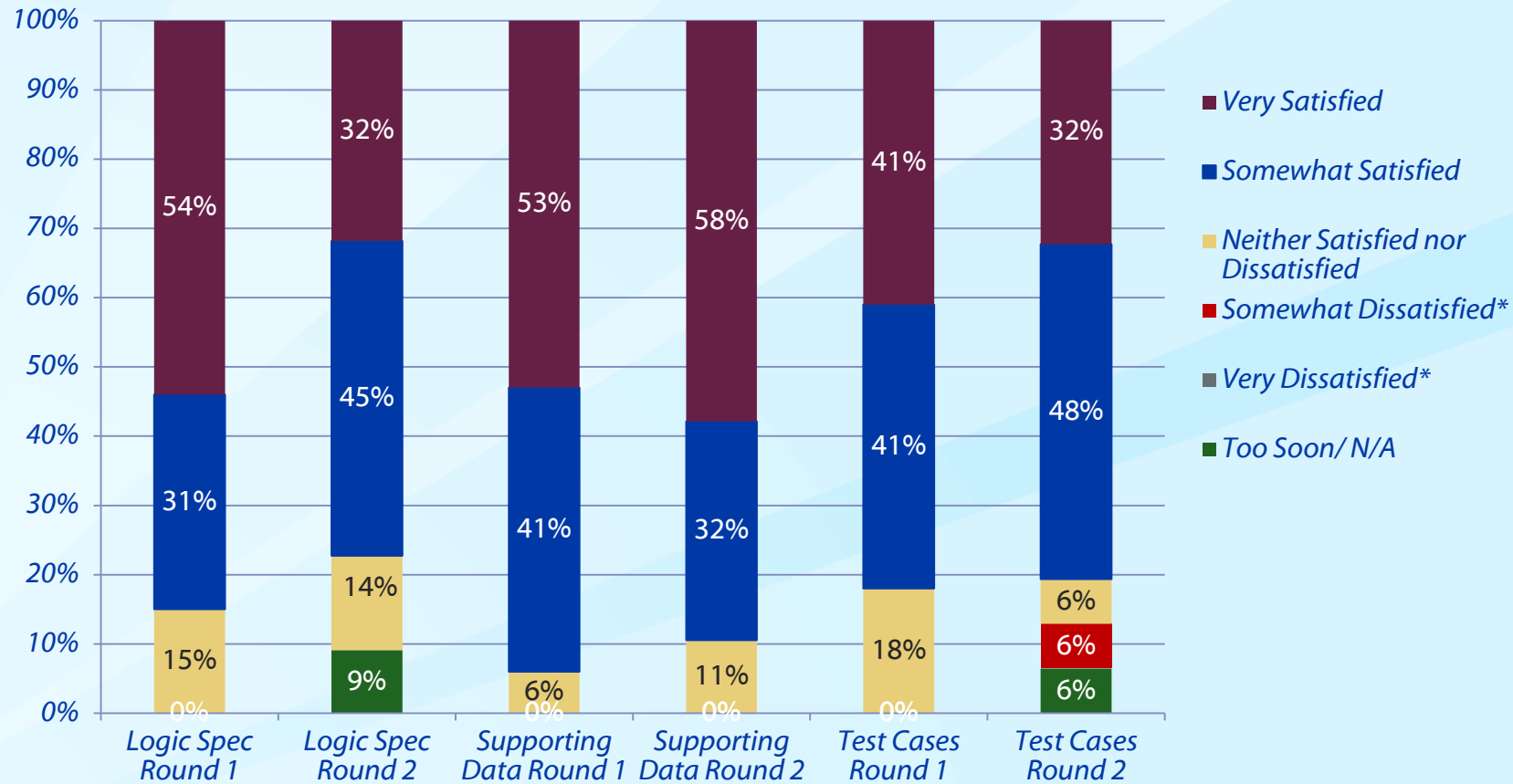
The majority of respondents who have used the resources report that they plan to continue to use the resources in the future.

Reasons Respondent Has Not Used CDSi

- ☐ **Vendor utilizes the resources**
- ☐ **Use a third party evaluation tool or vendor**
- ☐ **Work load / competing priorities/ lack of time**
- ☐ **Not aware of the resource**
- ☐ **Need training/ not sure how to use it**
- ☐ **Not ready to use it yet/ working on implementing a new forecaster/ will be using it soon**
- ☐ **System was already in place before CDSi**
- ☐ **Not useful for role (technical support/clinical)**

Satisfaction with CDSi Resources

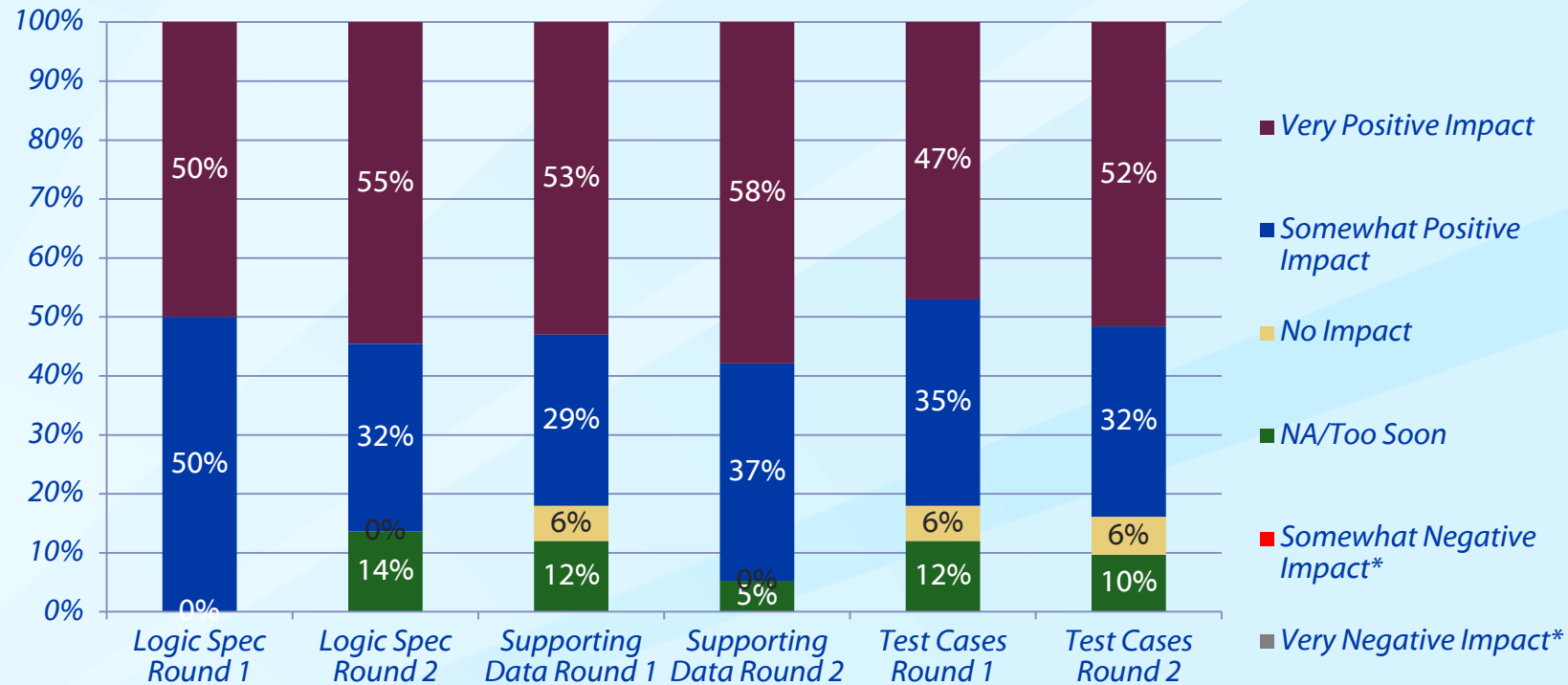
Of those who have used the CDSi resource,
How satisfied or dissatisfied are you with the resource?



Satisfaction levels are high across each resource

Impact of CDSi Resources

Of those who have used the CDSi resource,
What type of impact have the resource had in terms of the ease of use in developing and
maintaining CDS logic?



Impact levels are high across each resource

*Somewhat Negative Impact and Very Negative Impact = 0%

Overall Conclusions

- ❑ **Awareness and use increased from Round 1 to Round 3 across all resources**
- ❑ **Across Round 1 and Round 2 satisfaction was high among users**
 - About 80% or more respondents reported they were very or somewhat satisfied with the resources
- ❑ **Across Round 1 and Round 2 impact was high among users**
 - Over 80% of respondents reported a very or somewhat positive impact
 - None of the users reported a negative impact

How Online Assessment Data Has and Will Be Used for Improvement

❑ Track awareness and use of CDSi resources

- Improve communication and promotion
- Improve training and learning resources

❑ Improve CDSi Resources

❑ Guide CDSi Resources future directions

SUCCESS CASE METHOD

CDSi Success Case Method Evaluation

❑ Background

- The author's accidental SCM study at a major pharmaceutical organization
- Brinkerhoff, R.O. (2002). The success case method: Find out quickly what's working and what's not. Berrett-Kohl Publishers: San Francisco, CA.

❑ Benefits

- A "relatively quick and easy method of finding out what is working and what is not, which also provides accurate and trustworthy information that can be used to make timely decisions." (p 3)
- "The Success Case Method employs stories, but it combines storytelling with rigorous—albeit balanced and practical—evaluation methods and principles to combine the credibility of scientific finding with the emotional impact of stories. The stories produced by the SCM cite solid evidence—evidence that would "stand up in court" and is backed by the rigorous rules of judicial evidence: corroboration and documentation." (p xi)



CDSi SCM Impact Model

Capability	Behavior/Critical Applications	Goals	Results
<ul style="list-style-type: none">• Disseminate ACIP recommendations through CDSi resources• Update CDSi Resources based on new or changed ACIP guidelines• Translate clinical language into technical data that can be used to update CDS engines	<ul style="list-style-type: none">• Stakeholders become aware of and use CDSi resources• Gain knowledge about CDSi resources through reviewing the materials and trainings• Use CDSi resources for standard ACIP recommendations for children, adolescents, and adults	<ul style="list-style-type: none">• Single source of reference• Reduced complexity• Ease of use• Time/Cost savings	<ul style="list-style-type: none">• Increased accuracy and consistency of immunization evaluation and forecasting

Success Case Methodology

- ❑ Analyze survey results to identify potential success cases
- ❑ Choose cases for interview
- ❑ Develop interview protocol
- ❑ Success case interview buckets: Interview as a bucket filling process
- ❑ Conducting interviews
- ❑ Documenting success cases

Our interview protocol will focus on filling the following buckets:



CDSi Success Cases

IIS Awardees

- Rhode Island
- New York State

IIS Vendors

- Envision
- HLN
- Software Partners
- DXC

EHR Vendors

- Cerner
- NextGen

Impact Profile

Impact Profile: CDSi Resources IIS Success Story

Stakeholder Name:

Stakeholder Type:

Impact at a Glance

- Key Impact 1
- Key Impact 2
- Key Impact 3

The Impact Story

Summary of the impact

What They Used

Summary of how the CDSi resources were used

What They Achieved

Summary of the results they achieved

What helped and what did not

Summary of what helped and what barriers they had

Suggestions

Summary of suggestions for improvement

Future Plans

Summary of future plans related to CDSi Resources

Preliminary Results – What results were achieved?

What results were achieved?

Quality has improved, can run the test cases through their testing tool and they can see results quickly. This results in a higher quality product.

The CDSi resources help them catch mistakes in their forecaster and **fine tune** their rules.

Use CDSi resources to **guide changes** to their system, have made multiple fixes based on CDSi.

Having a specification defined by a dedicated group with access to the best sources has **made their lives much simpler**. Also, it has given them **confidence** in their application.

CDSi is a **surefire reference** to decision support that is also available to clients. Drives **credibility**.

Helped **normalize** the expectations and gave clinicians a **common resource** to compare their interpretations.

CDSi has allowed them to **check** whether **their algorithm** is performing correctly when presented with unusual cases.

Preliminary Results – What good did it do? (value)

What good did it do? (value)

Helps **save time** is by bringing things to our attention more quickly. The regular releases **reduces the amount of effort** on our part when a new ACIP recommendation comes out.

Helps **save time, money,** and **accuracy** has improved.

The resources are **not complex** and it is very helpful that they are simple, we count on the resources.

Helps **save money** because they help **save time**.

Having a **single source of reference** is a huge benefit

Our CDS engine is **more accurate** and **more deterministic**. Especially when you get unexpected use cases

CDSi has been a **teaching tool** – for Immunization and IIS staff to explain how ACIP rules are applied.

Next Steps

Finalizing
Success Case
Method
Evaluation

Using results to
inform and
improve CDSi
Resources

Continuing
evaluation of
use and impact

Questions

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<https://www.cdc.gov/vaccines/programs/iis/cdsi.html>

Or Google “CDC CDSi”

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