

Developing a Physician-Employer Linked Database

Victoria Udalova ▪ Dennis Linders (presenter) ▪ Alice Zawacki ▪ Kate Vavra-Musser ▪ @ FCSM 2022

Any opinions and conclusions expressed herein are those of the authors and do not reflect the views of the U.S. Census Bureau.
This presentation does not include any confidential data.

Project Motivation

1 Knowledge gaps

The business of health care is rapidly evolving, but stakeholders tell us not enough is known about the impact of these changes on care (cost, quality, access), the workforce, and local markets.

BUSINESS TRENDS

| | | |
|---|--|--|
| Industry consolidation + vertical integration | Shift of physicians from owners to employees | Growing reliance on healthcare staffing agencies |
| Changing regulatory environment (ACA) | Growing involvement of private equity | Impact of COVID-19 pandemic |

2 Data gaps

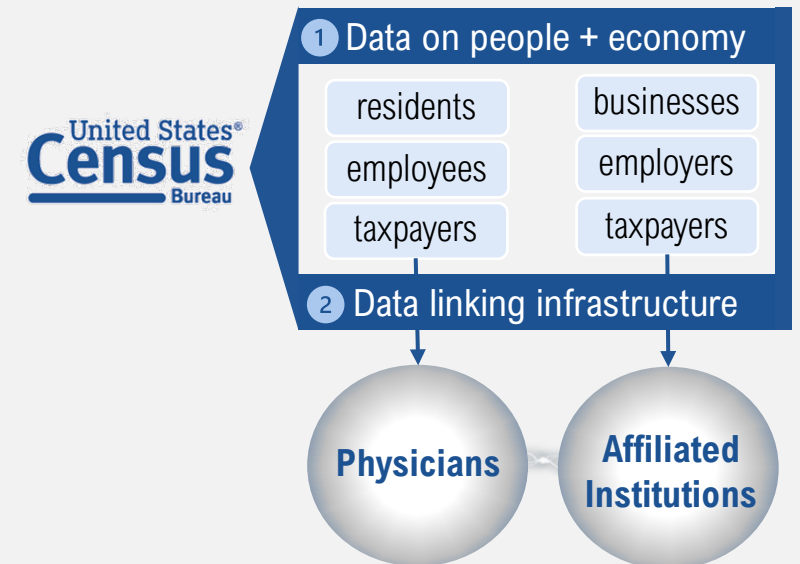
These gaps in knowledge are in part due to the absence of a definitive source of data on the supply of health care; existing datasets present a range of tradeoffs and limitations.

“Even seemingly simple concepts, such as the number of practitioners may be more slippery than researchers realize.”

(Maurer et al. HSR 2021)

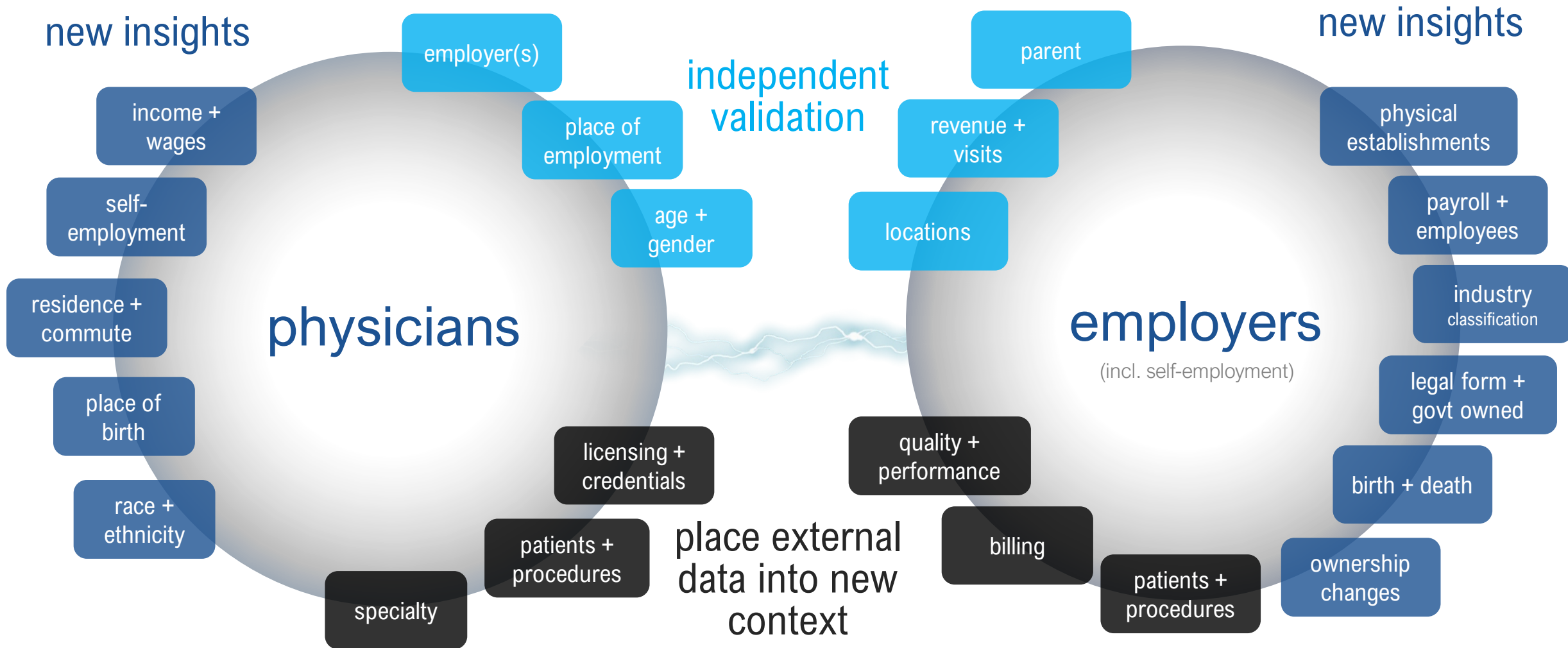
3 Project aims

Census does not have all the answers either—and is not principally focused on health—but we can use our unique data linking infrastructure to enhance data on physicians and their employers with our rich data on the American people and economy.



Vision: Integrated Data on Physicians and their Employers

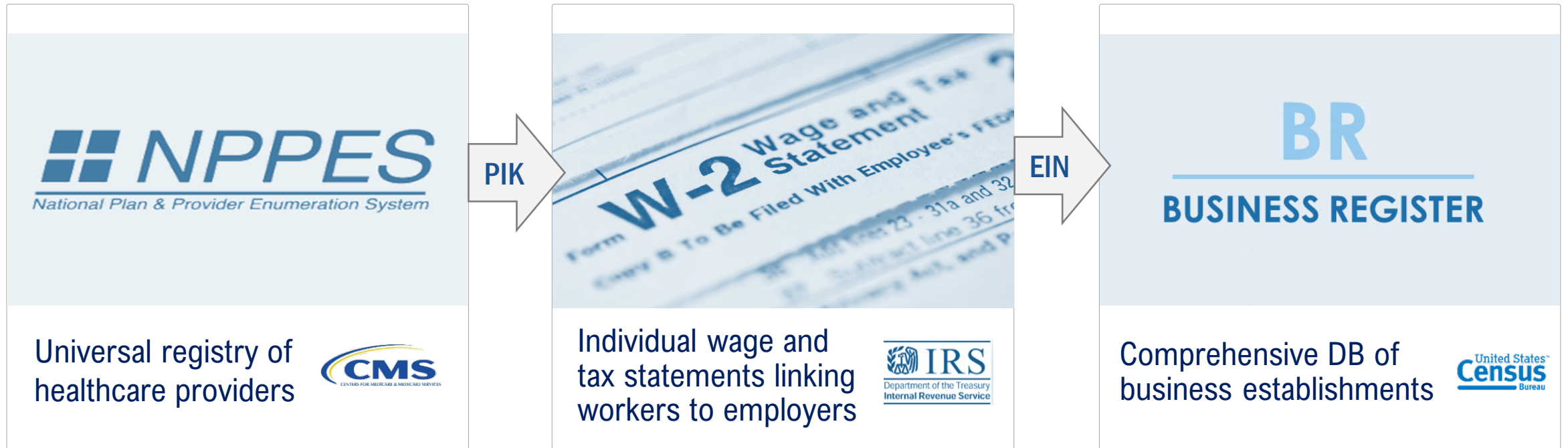
Operationalize Census' unique assets to enhance data and contribute novel insights on physicians and their employers



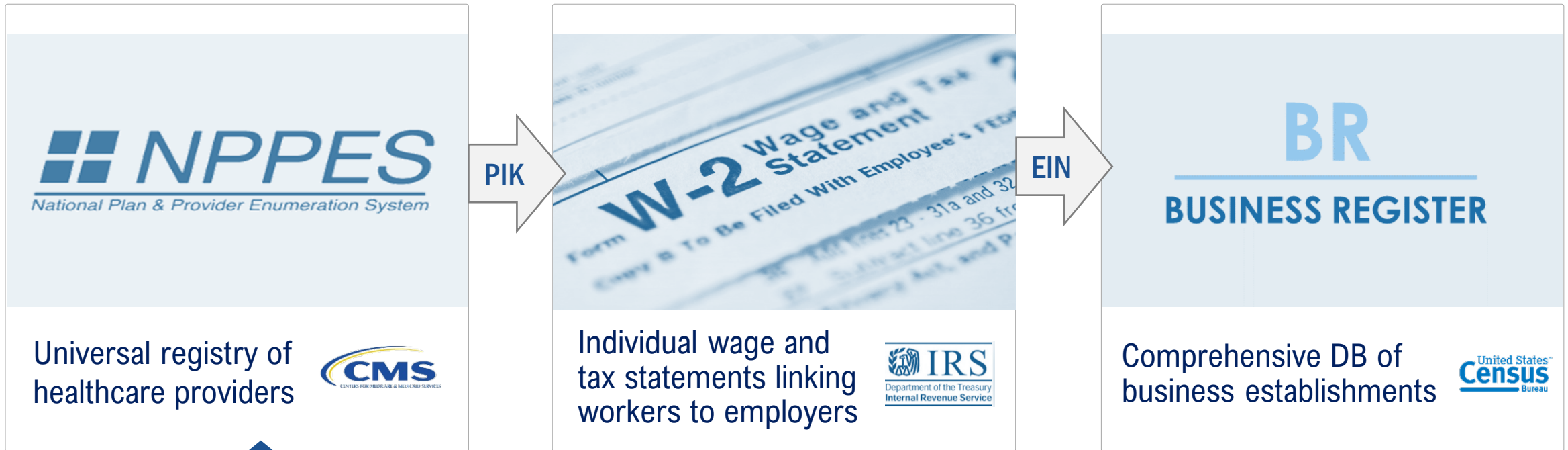
All data releases are subject to disclosure avoidance reviews to protect privacy of individual physicians and businesses.

Time dimension: Initial work focused on 2018 pre-pandemic baseline, but data joining process is repeatable across years

Integrating Restricted Administrative Records



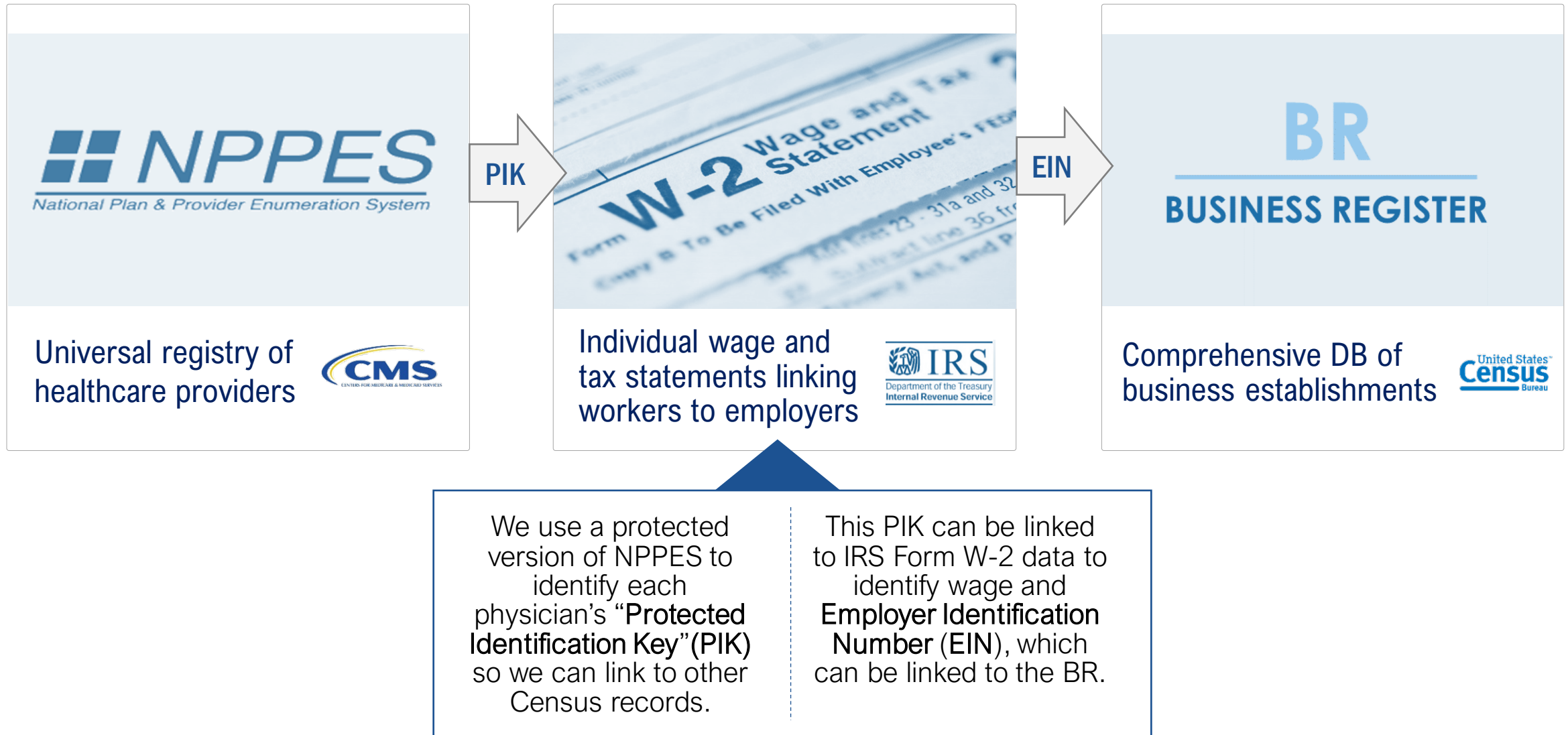
Integrating Restricted Administrative Records



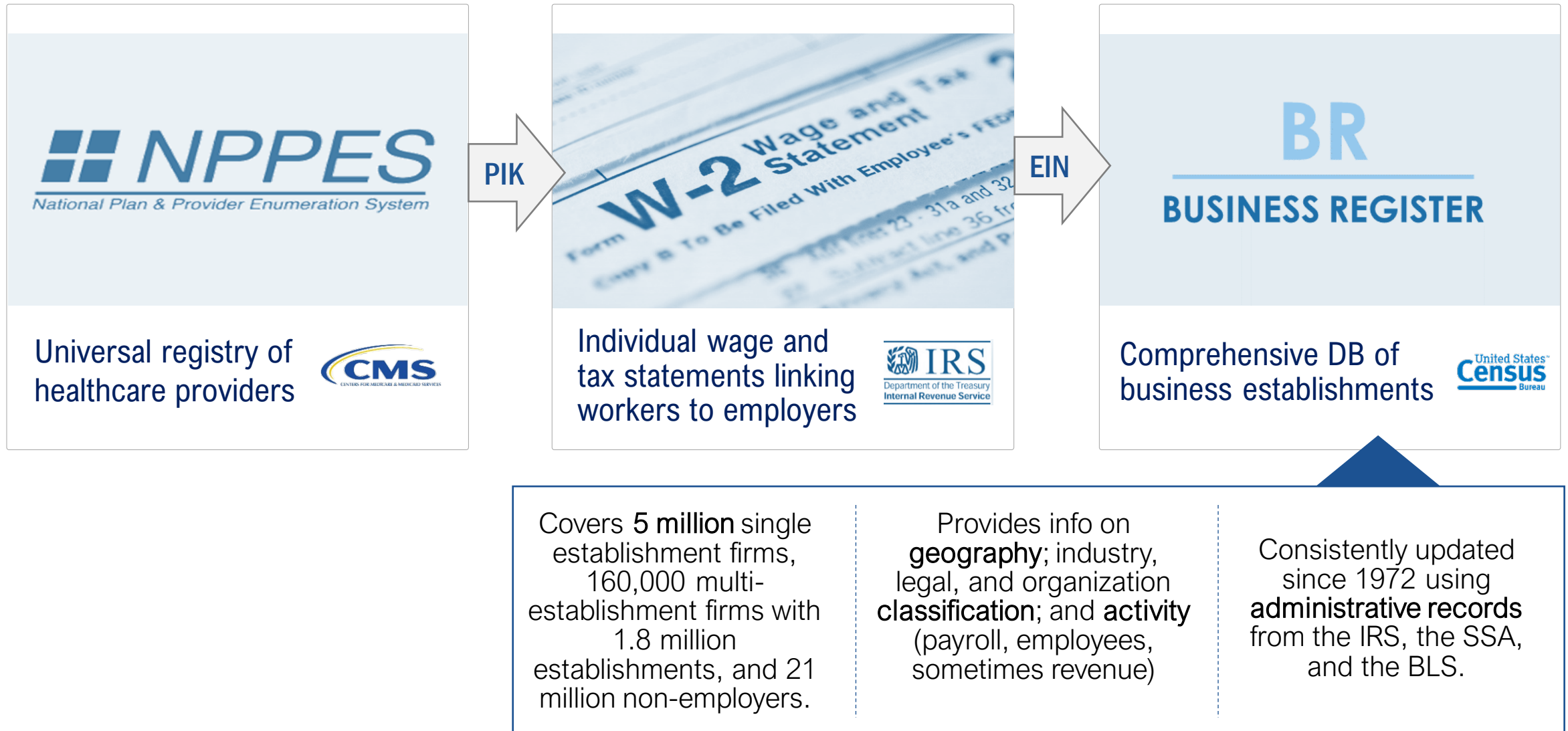
Used to assign a unique “National Provider Identifier” (**NPI**) to each health care practitioner—mandated by HIPAA and launched in 2005.

Over **5 million** active records for practitioners ranging from physicians to athletic trainers. Also 1.5 million registered organizations.

Integrating Restricted Administrative Records

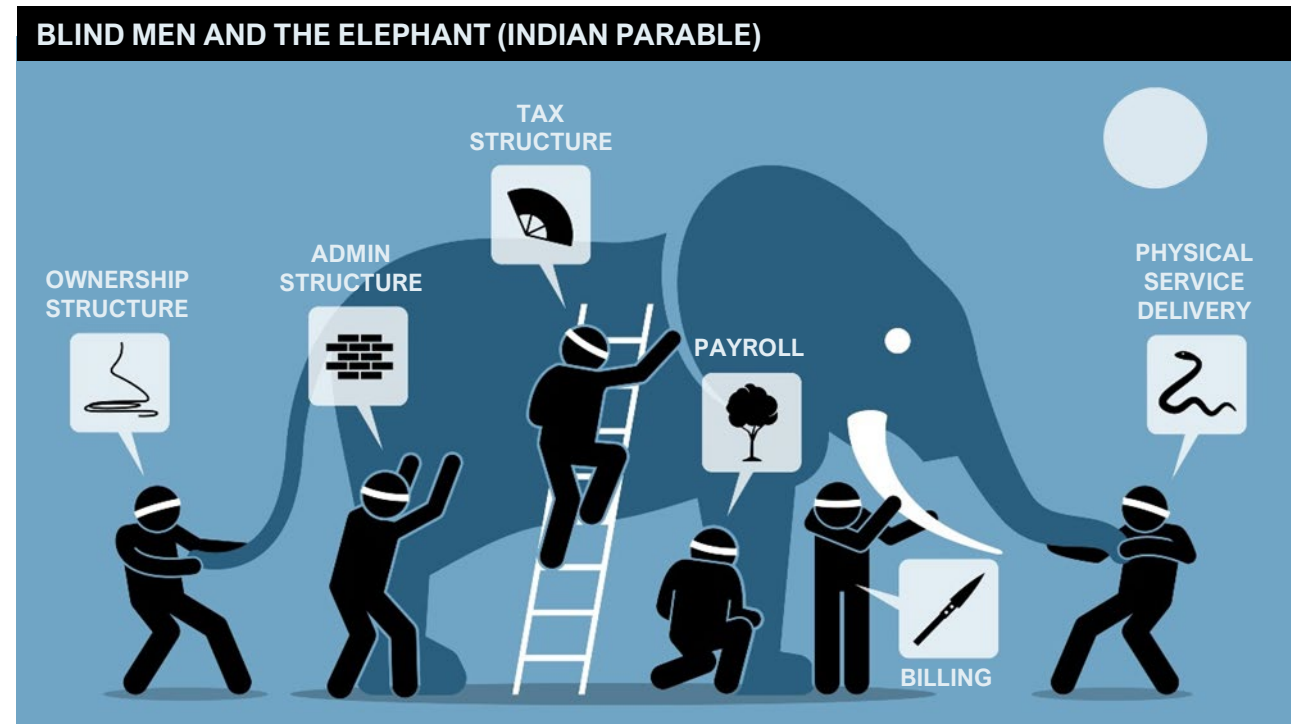


Integrating Restricted Administrative Records



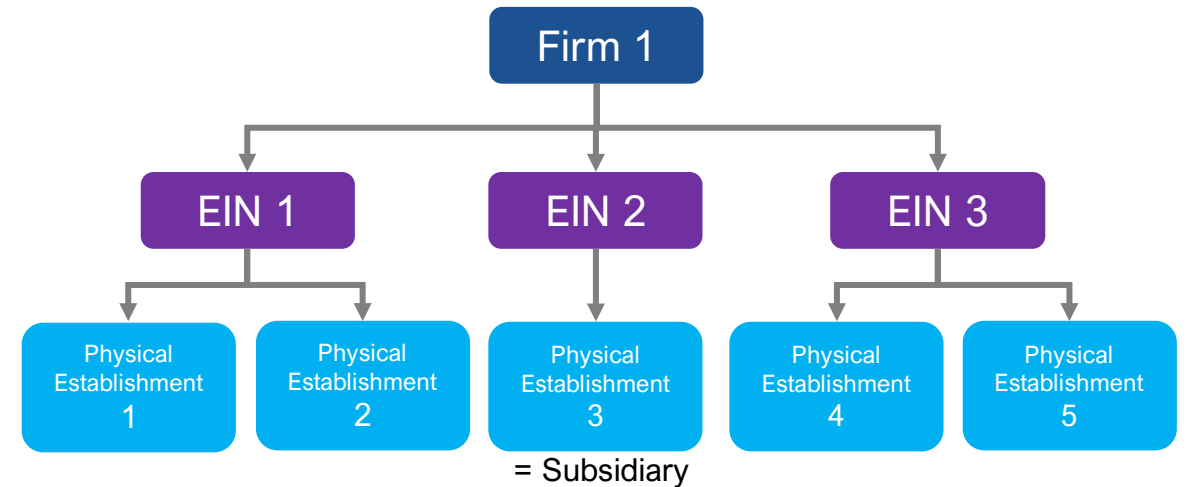
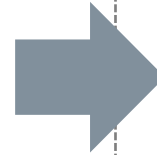
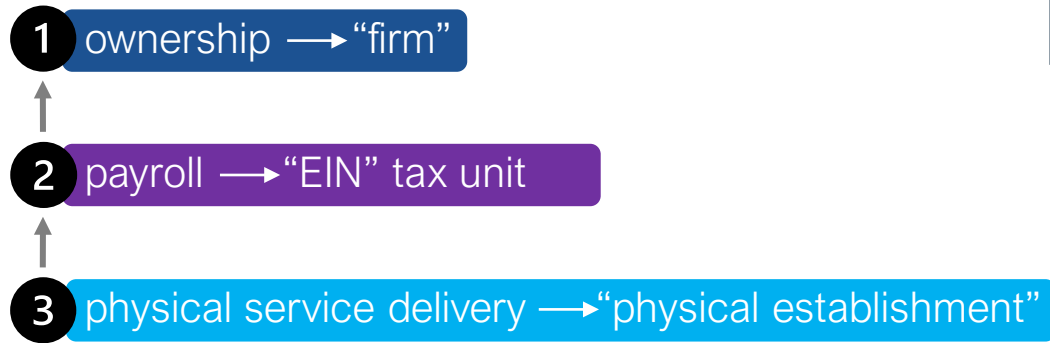
Connecting the Dots: The Challenge

- Organizational structures and affiliations can look very different in different administrative datasets because they are generated for different purposes and from different perspectives.
- Easy to track a one-physician practice that has operated out of the same location for decades:
 - All competing perspectives look largely the same (ex: ownership vs. service delivery vs. payroll)
- Difficult to track physicians working for complex, evolving health systems:
 - Payroll and employment may be indirect (staffing agency).
 - Client services can be provided in multiple locations—or even virtually via telemedicine.
 - Billing, health records, and other administrative functions may be outsourced or centralized in a different location.
 - Ownership and affiliations may be complicated and multi-faceted due to frequent mergers & acquisitions, vertical integration, and involvement of private equity.



Connecting the Dots: Benefits of the Business Register

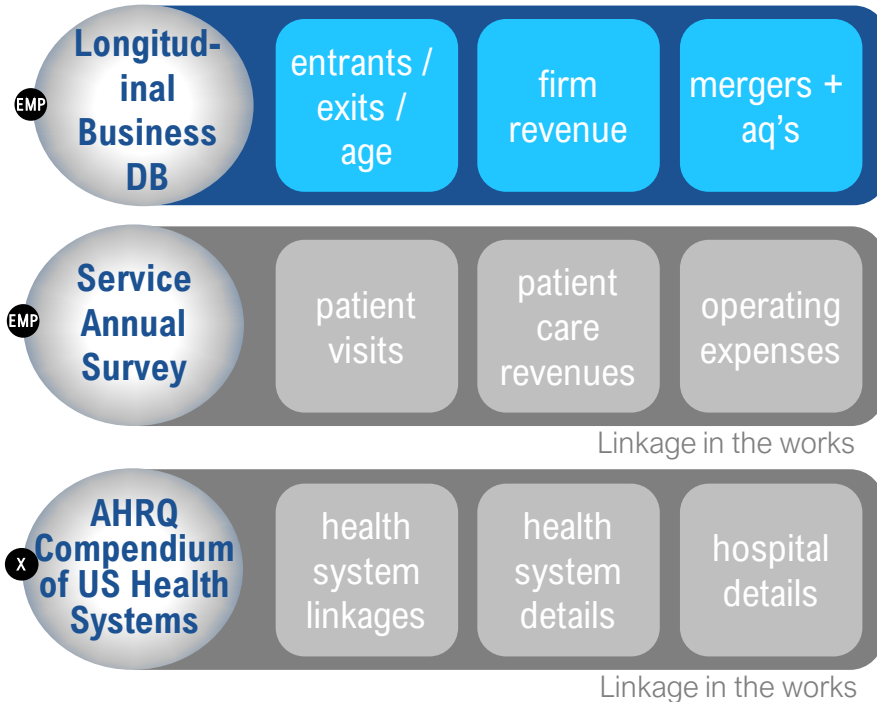
A key benefit of the Business Register is that it explicitly splits out, tracks, and links together 3 main lenses on businesses:



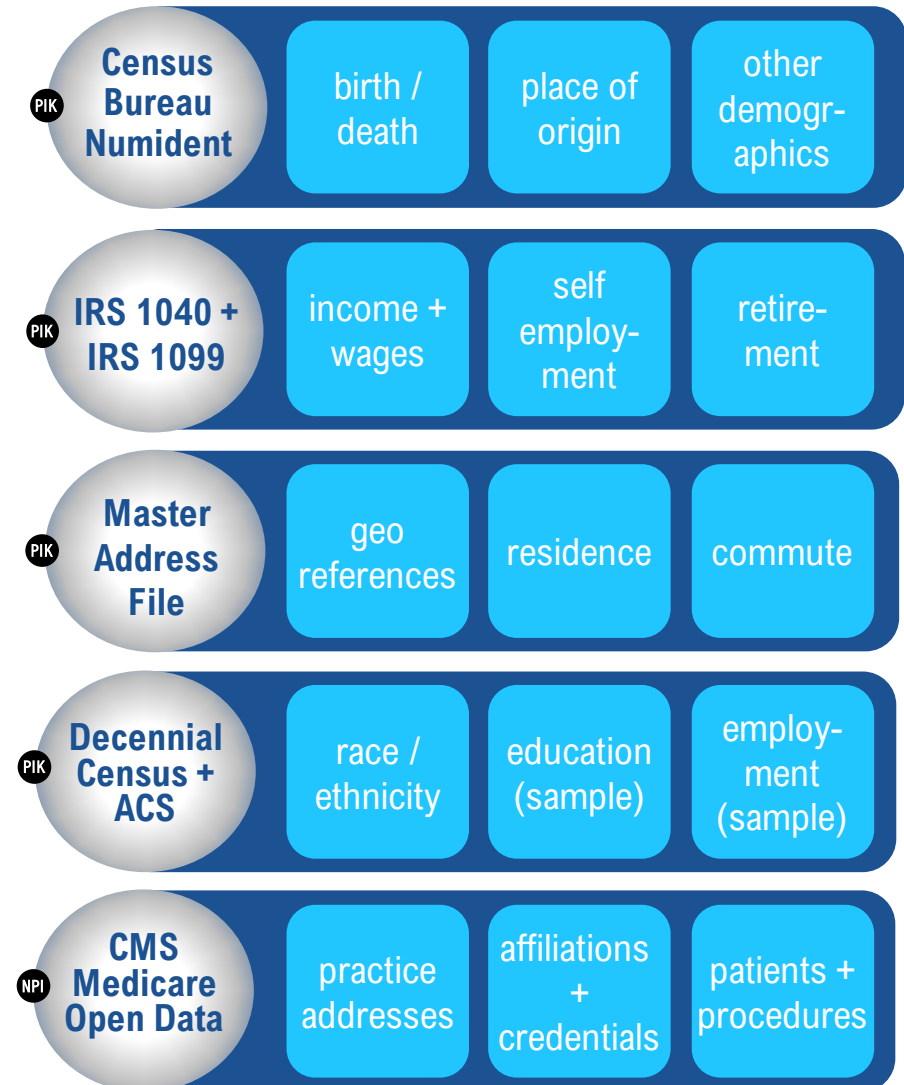
Key linkage challenge: We link physicians to businesses at the EIN → using an algorithm to place physicians with their establishment(s) that leverages various geographic identifiers.
(ex: known work addresses, residence, state of license, etc.)

Additional Linkages

1 businesses



2 physicians



From Infrastructure to Insights: Setting Priorities

1 Priority Questions

The role of the US Census Bureau is to use our assets and capabilities to help stakeholders—researchers, governments, and the public—answer important questions.



What important questions and information needs are our data best positioned to help answer?

2 Partnerships

Our focus is on building an enabling data infrastructure so that we can empower partners with enhanced data and better answers to their most pressing questions.



What partners or projects would most benefit from leveraging this new data asset—and how can we best collaborate?

3 Public Data Products

We also seek to inform the public by synthesizing and publicly sharing key national and community-level findings as aggregate statistics.



Privacy protections permitting, what key facts and trends would be most valuable to share publicly and update regularly?

Sample Qs

How have the employers and employment patterns of physicians changed over time—particularly pre and post COVID-19.

Which communities have seen the most employer consolidation and how does this impact patient services (ex: access) and physician earnings?

How do urban and rural communities differ in the structure, ownership, and distribution of institutions that employ physicians?

How well do physicians reflect the communities that they serve (such as by race/ethnicity), and how does this differ by community or specialty?

What share of US physicians are employed outside of traditional health care firms and what do they do?

Project Status and Future Work

Current Activities

version 1.0

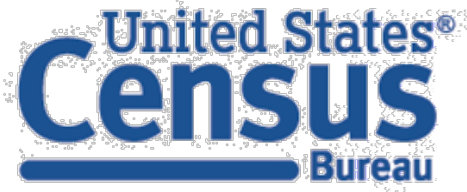
- 1 **Completing initial linkage phase** of building core integrated dataset (focus: enabling comparisons over time).
- 2 **Drafting working paper** that transparently documents the “1.0” linkage process, with sample exhibits.
- 3 **Initiating stakeholder interviews** to better understand stakeholder needs and opportunities for collaboration.

Future Work

version 2.0+

- 1 **Continue to enhance coverage** of physicians and their organizations by linking in additional (partner) data.
- 2 **Compare our dataset to existing datasets** that place physicians with organizations—and understand differences.
- 3 **Implement advanced privacy preservation** strategies and techniques to enable public reporting at low levels of geography.

Thank you—Questions?



Contact: Dennis Linders
EHealth Program Data Scientist
dennis.linders@census.gov

Website: <https://www.census.gov/programs-surveys/ehealth.html>