B23: A List of Possible Analyses and Other Uses for Linked Health and Non-health Population Targeting Data

- Who is this tool for? This tool is to help health agencies who have completed data linkage with another institution's population targeting data to think about what additional analyses or uses this linked data could have, besides sharing of beneficiary lists. It was produced through a brainstorming exercise and is intended to act as 'food for thought' rather than a definitive list of possible options.
- How was it produced? This topic was not covered in the main JLN Learning Collaborative workshops, as these were largely focused on *how* to achieve data linkage. Nevertheless, the group felt it was important to consider how linked datasets for population targeting might have additional uses (besides providing lists of beneficiaries) that should be considered so as to create maximum value for the effort of achieving linked data. An additional one-hour brainstorming session was held with participants to share ideas of what might be possible - the results of which are shared in this document.

The primary aim of most health agencies looking to create a population targeting data linkage is so that beneficiary lists can be merged - for example, so that individuals or households on a country's social registry can also be offered subsidized health insurance. However, once this link has been completed there are many other possible uses that linked targeting data can create from the health agency perspective. This paper outlines some of these additional uses which health agency practitioners and officials may attempt. Because of the make-up of the group that contributed, it comes predominantly from a national health insurance agency perspective.

Understanding the fields of data to be linked

To understand the possible uses of linked health and non-health population targeting data, it is important to first understand the typical fields of data that are collected by each. Below is listed a representative, but fairly typical, visualization of the data typically captured by a social registry (Figure 1) and a national health insurer or dominant health payer (Figure 2):

Figure 1: Common targeting data collected, e.g. by a social registry (Figure 4.1 in Lindert, K et al, (2020) "Sourcebook on the Foundations of Social Protection Delivery Systems". World Bank)

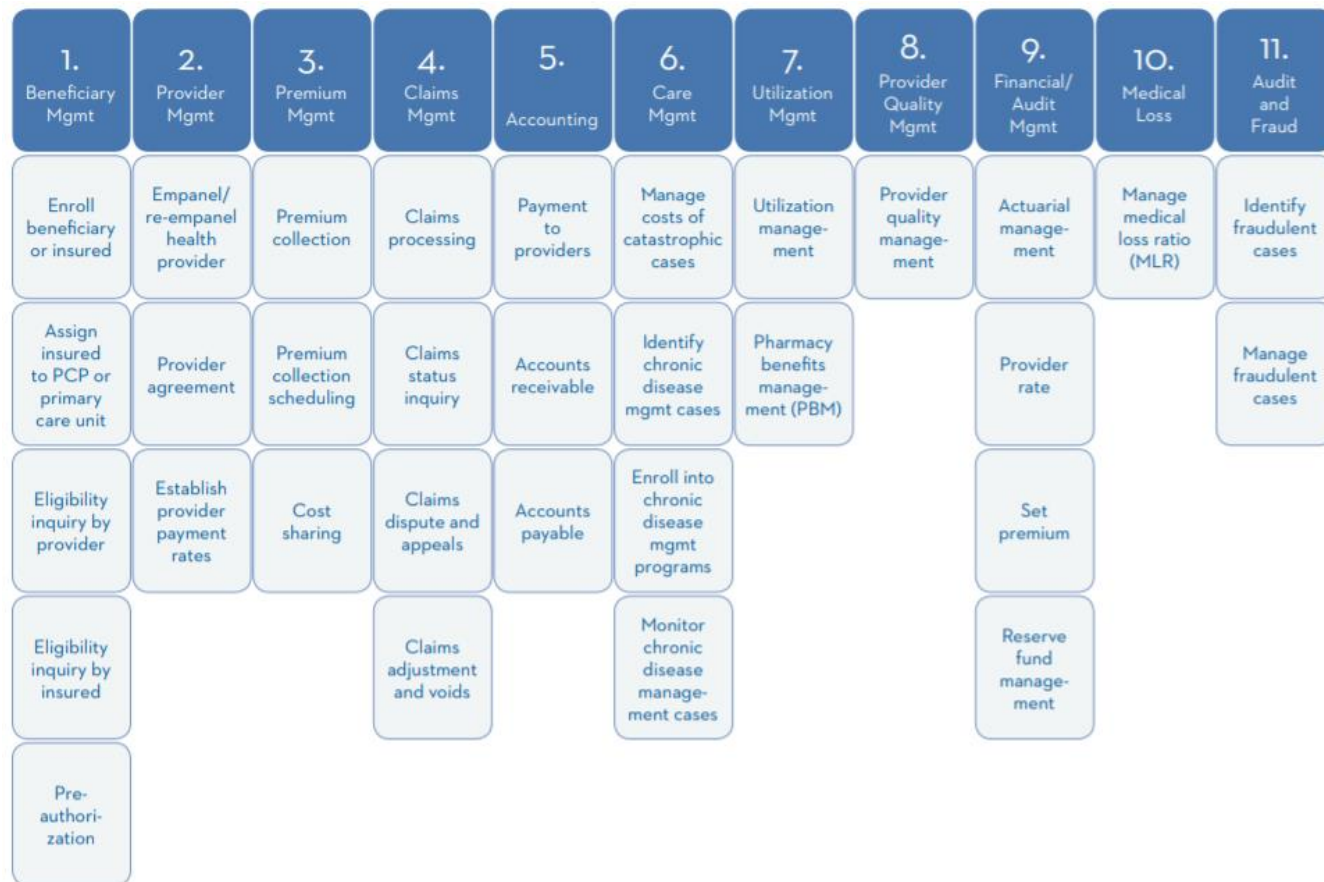|		
	Demographic groups along the life cycle (assistance unit = individuals)	
	• Children • Elderly • Women	• Basic identifying information (for individual + designated guardian if relevant) • Residence/citizenship status (for individual + designated guardian if relevant)
	Groups constrained by socioeconomic status (assistance unit = individuals, families, households)	
	• People living below the poverty line • Homeless • People living in isolated and remote areas • Pastoralist, nomadic, and semi-nomadic groups • Indigenous groups • Refugees, stateless, immigrants, internally displaced populations (IDPs) and/or people living in areas affected by fragility, conflict, and violence • Ethnic, religious, linguistic, and visible minorities	• Basic identifying information (for individual + designated guardian if relevant) • Residence/citizenship status (for individual + designated guardian if relevant) • Characteristics of household members • Employment status of household head and/or working-age adults • Income information for all household members • Assets of the household • Household expenses • Other info (proxies, catastrophic events, etc.) • Geospatial information on the location of the household, including address and other contact information, as well as GPS geo-coding information (where possible)
	Labor and work conditions (assistance unit = individuals)	
	• Unemployed • Discouraged/inactive workers • Informal sector workers • Forced or child laborers	• Basic identifying information • Residence/citizenship status and proof of residency • Current labor-force status (employed, unemployed, inactive); work history • Distance to labor market and barriers to work
	Disability (assistance unit = individuals)	
	• Persons with disabilities • Workers with disabilities	• Basic identifying information (for individual + designated guardian/caregiver if relevant) • Residence/citizenship status (for individual + designated guardian/caregiver if relevant) • Medical information: nature, type, severity and duration of the disability, as well as any secondary or comorbid conditions that may require prevention or treatment • Functional limitations: functions that are impaired due to the disability; care needs • Nonmedical socioeconomic considerations (see above) that may or may not be directly related to the experience of disability • Support sought: the types of benefits and services that the individual is seeking (which can also be informative in assessing their needs and conditions)
	Vulnerable individuals facing specific social risks (assistance unit = individuals, families)	
	• Children at-risk • Youth at-risk • Adults at-risk • LGBT	• Basic identifying information • Residence/citizenship status and proof of residency • Socioeconomic status • Labor-related information • Key risk factors: family, social, substances, violence, health, homelessness, legal, and so on • Self-assessment, aspirations, goals, perceptions, attitudes, concerns, and so on

Figure 2: Typical functional structure of a national health insurance IT system (Figure 3 in JLN (2019) "A guide to common requirements for national health insurance information systems")

1. Beneficiary Mgmt	2. Provider Mgmt	3. Premium Mgmt	4. Claims Mgmt	5. Accounting	6. Care Mgmt	7. Utilization Mgmt	8. Provider Quality Mgmt	9. Financial/ Audit Mgmt	10. Medical Loss	11. Audit and Fraud
Enroll beneficiary or insured	Empanel/ re-empanel health provider	Premium collection	Claims processing	Payment to providers	Manage costs of catastrophic cases	Utilization manage-ment	Provider quality manage-ment	Actuarial manage-ment	Manage medical loss ratio (MLR)	Identify fraudulent cases
Assign insured to PCP or primary care unit	Provider agreement	Premium collection scheduling	Claims status inquiry	Accounts receivable	Identify chronic disease mgmt cases	Pharmacy benefits manage-ment (PBM)		Provider rate		Manage fraudulent cases
Eligibility inquiry by provider	Establish provider payment rates	Cost sharing	Claims dispute and appeals	Accounts payable	Enroll into chronic disease mgmt programs			Set premium		
Eligibility inquiry by insured			Claims adjustment and voids		Monitor chronic disease manage-ment cases			Reserve fund manage-ment		
Pre-authori-zation										

Possible uses and additional analyses

Looking across these potential data fields from a health agency perspective, a range of possible analyses and functional uses were suggested by the group, as follows:

1. Analysing claims or other measures of healthcare utilization against specific indicators of poverty status, to understand differential health needs and health-seeking behaviours among poor and vulnerable sub-populations.
2. Mapping provision of health services against GIS data for different poor and vulnerable sub-populations, to understand whether there are additional physical gaps in access faced by these groups.
3. Analysing the potential impact on social determinants of health, as captured by e.g. housing data, on health status of beneficiaries
4. Measuring the impact of catastrophic health events on poverty, e.g. does household spending data reveal key gaps in financial protection which could be addressed by adjustments to the benefit package.
5. Identifying non-poor informal sector workers who need to pay into a social health insurance scheme, by comparing subsidized beneficiaries list with a universal population register (see example of this from Thailand in Tool B21).
6. Identifying fraudulent claims, for example, by using family make-up and location data to identify irregular patterns of utilization.

7. Analysis of household expenditure data (e.g. unusually large share of spending on healthcare) to identify providers who may be requesting illegal side payments for treatments that should be free.
8. Feeding data on health-seeking behaviours automatically back to a conditional cash transfer scheme for which actions such as vaccination status are part of the conditions.
9. Offering additional benefits on top of a cash transfer scheme (e.g. a supplementary payment) in the event of a catastrophic health event.
10. Improving targeting by feeding health information (e.g. data on individuals with severe disabilities, or pregnancies) back to the central registry so these individuals can receive additional social support.

In some countries there may be legal restrictions on whether some of this data can be shared between agencies for research or functional purposes. This will depend on the data sharing agreement put in place between the agencies (explored further in the main report), but there are often work-arounds. For example, it may be possible for the health agency to conduct analyses without having full access to population targeting records, by using anonymised data or submitting specific requests to which only yes/no answers will be returned.