

Strategies to Leverage IS Capabilities to Improve Outreach to Children with Chronic Conditions

Background

Children with chronic conditions have increased risk of complications from influenza (flu) and have historically had low seasonal flu vaccination rates. Opportunities exist to enable immunization information systems to target children with high-risk conditions (HRCs) for flu vaccination reminders.

Objective

To explore the feasibility of using administrative claims data to enable a statewide immunization information system (IIS) to target flu vaccine reminders for children with HRCs.

Methods

Setting

The Michigan Care Improvement Registry (MCIR), a statewide Immunization Information System (IIS).

Creation and Evolution of the High-Risk Indicator

- A chronic condition indicator in MCIR was populated using cases identified for children ≤ 18 years with ≥ 1 claim meeting diagnosis code criteria (**Table 1**) from:
- the Michigan Medicaid or Children's Special Health Care Services (CSHCS) program, starting in 2006.
- the Blue Cross Blue Shield of Michigan/Blue Care Network (BCBSM/BCN) commercial health plans, starting in 2010.

Role of the High-Risk Indicator

- The high-risk indicator:
- triggers a pop-up reminder when a child's immunization record in MCIR is accessed during influenza season; and,
- identifies children targeted for mailed influenza vaccination reminders to children with HRCs.

Outcomes Measured

□ The feasibility of populating a high-risk indicator in MCIR was measured by:

- the number of children with HRCs identified using Medicaid/CSHCS and BCBSM/BCN claims data; and,
- the percentage of asthma HRC cases identified in MCIR confirmed by parent report of physician-diagnosed asthma.

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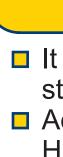
High-Risk Definition

Table 1. ICD-9 CM Diagnosis Codes Used to Populate the High-Risk Indicator in the Michigan Care Improvement Registry (MCIR).

Pulmonary	Asthma and reactive airway disease 493.0–493.9, 519.1	
	Cystic fibrosis 277.0	
	Bronchopulmonary dysplasia 770.7	
	Bronchiectasis 494.0–494.1	
	Congenital lung anomalies 748.4–748.6	
	Chronic respiratory disease or failure 518.83–518.84, 519.9	
	Postinflammatory pulmonary fibrosis 515	
Cardiovascular	Congenital heart disease 745.0–747.4	
	Chronic pulmonary heart disease 416.0–416.9	
	Valvular or endocardial disease 424.0–424.3	
	Rheumatic heart disease 391.0–391.9, 392.0, 393–398.99	
	Cardiomyopathy 425.0–425.4, 429.1, 429.3	
	Heart failure 428.0–428.9	
Renal	Nephrotic syndrome 581.0–581.9	
	Chronic glomerulonephritis 582.0–582.9, 583.0–583.9	
	Chronic renal failure 585–586	
	Congenital renal anomalies 753.0–753.1	
Hematologic	Thalassemia 282.4	
	Sickle cell anemia 282.6	
	Other hemoglobinopathies 282.7	
	Aplastic anemia 284.0–284.9	
	White blood cell disorders 288.0-288.2	
Immunosuppressive	Hereditary immunodeficiency 279.0-279.9	
disorders or therapies	HIV infection 042, V08	
	Malignancy 140.0–160.0, 160.2–208.9, 235.0–239.9	
	Systemic lupus erythematosus 710.0	
	Organ or bone marrow transplantation V42.0–V42.9	
	Radiation or chemotherapy V58.0–V58.1	
	Asplenia 759.0	
Metabolic	Diabetes 250.0–250.9	
	Amino acid disorders 270.0, 270.2–270.9	
	Carbohydrate disorders 271.0–271.1, 271.4–271.9	
	Lipid disorders 272.1–272.3, 272.5–272.9	
	Other metabolic disorders 277.1–277.3, 277.5–277.6, 277.8–277.9	
Diseases associated	Kawasaki disease 446.1	
with aspirin therapy	Rheumatoid arthritis 714.0–714.9	
Other conditions	Cerebral palsy 343.0–343.9	
	Muscular dystrophy 359.0–359.3	
	Down syndrome 758.0	









Results

Children Identified using Claims Data

□ Since 2006, 206,347 children with HRCs have been identified in Medicaid/CSHCS claims and successfully loaded into the MCIR chronic condition indicator. The 2010 expansion yielded nearly 32,000 additional cases identified from BCBSM/BCN claims.

HRC Indicator Validity

Evaluation results indicate that 89% of asthma HRC cases identified in MCIR had physician-diagnosed asthma.

	Medicaid / CSHCS	Blue Cross / Blue Shield – Blue Care Network
	(n = 206,347)	(n = 31,999)
Characteristic	%	%
Age (years)		
0-4	14	15
5-9	38	23
10-14	28	28
15-18	20	34
Gender		
Male	57	53
Female	43	47

Table 2. Characteristics of Children with High-Risk Conditions in the Michigan Care Improvement Registry (MCIR) (n=238,346).

Conclusion

□ It is feasible to use administrative claims to populate a high risk indicator in a statewide IIS.

Administrative claims may be an effective mechanism to identify children with HRCs in IIS to improve influenza vaccination rates among priority groups.

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