

Background

In 2012 the Northwest Territories (NWTs) Public Health Act mandated that all health care providers report immunizations administered in the territory to the Chief Public Health Officer. Shortly after, the Department of Health and Social Services' (DHSS) Disease Registry unit begun working toward the implementation of a new information system to support their immunization registry. Today an amalgamation of excel spreadsheets submitted from the community health centres form the NWT immunization registry.

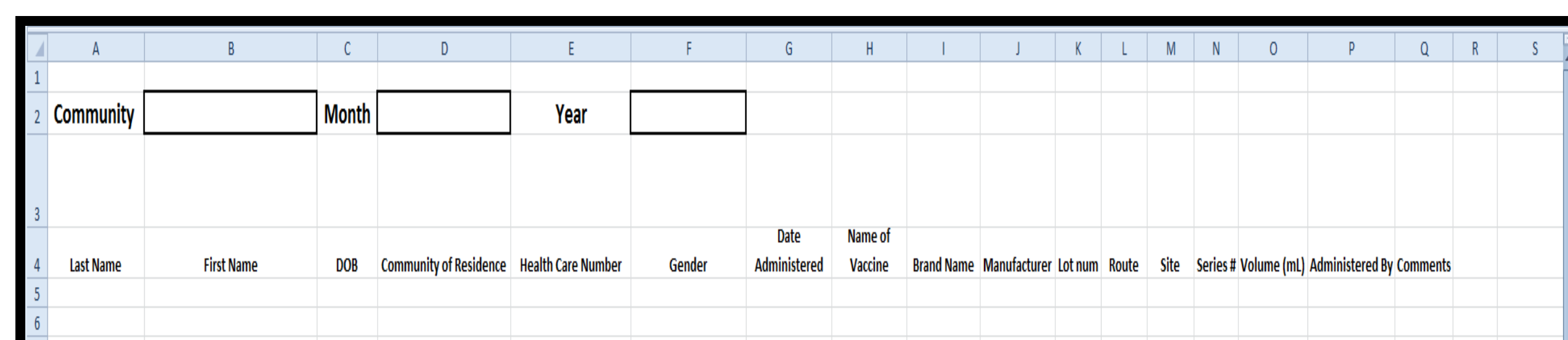


Figure 1. Community Immunization Registry Spreadsheet

Key Issue

The young, fertile and mobile NWT population poses challenges in maintaining high quality data within their existing immunization registry. Quality data is important to determine the efficacy of vaccines and uptake of territorial vaccine programs. Furthermore, quality data is critical for appropriately allocating communicable disease program funding.

Method

To assess the validity and reliability of the immunization registry the community health centres were contacted and asked to fax all immunization records for children born between 2012 to 2014, inclusive. The immunization records received were then compiled into one excel spreadsheet. The cohort spreadsheet was used as the comparator to determine the errors in the information entered into the existing immunization registry. Figure 2 highlights the process of comparing the physical immunization records collected from the communities (gray) and the original spreadsheets submitted to DHSS on a monthly basis (purple).

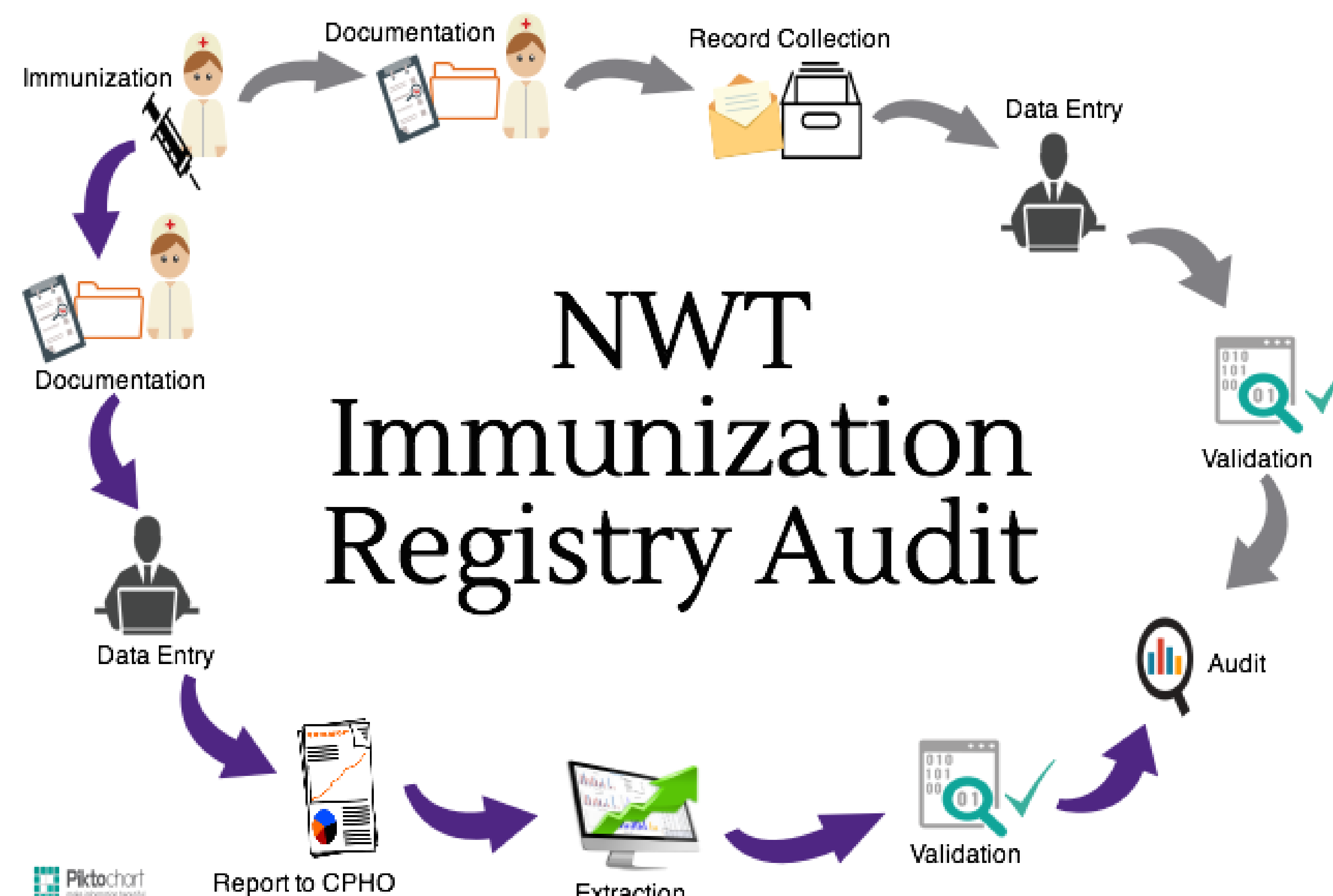


Figure 2. Process of auditing the Existing Immunization Registry in the NWT

Findings

Tables 1 and 2 demonstrate the quality of data in the NWTs immunization registry. Table 2 further emphasizes NWT need for a new information system in hopes of minimizing errors in the registries unique identifier.

Health Centre	Name	HCN	DOB	Vaccine Date	Vaccine Name	Brand	Manufacturer	Lot Number	Route	Site	Series	Quantity
COMMUNITY 1	23.1%	29.6%	6.1%	24.3%	6.3%	62.3%	6.9%	1.6%	31.2%	5.9%	4.9%	1.8%
COMMUNITY 2	26.0%	22.3%	1.6%	13.8%	2.1%	29.3%	27.6%	1.6%	27.5%	6.8%	3.4%	6.4%
COMMUNITY 3	45.5%	27.3%	0.0%	5.7%	1.1%	46.6%	36.4%	4.5%	43.2%	12.5%	3.4%	13.6%
COMMUNITY 4	16.8%	32.2%	3.7%	21.7%	2.7%	34.4%	20.0%	0.7%	29.5%	3.4%	7.1%	2.0%
COMMUNITY 5	16.6%	19.4%	6.7%	14.0%	4.1%	46.3%	14.7%	0.9%	23.3%	4.1%	6.9%	1.7%
COMMUNITY 6	16.4%	71.7%	13.2%	15.7%	4.4%	64.2%	17.6%	2.5%	24.5%	7.5%	7.5%	3.1%
COMMUNITY 7	11.2%	33.8%	16.9%	16.0%	3.3%	73.6%	13.2%	4.0%	23.1%	7.5%	8.1%	4.8%
COMMUNITY 8	12.3%	18.1%	10.1%	14.7%	8.6%	58.0%	14.4%	2.8%	19.6%	5.8%	0.3%	9.2%
COMMUNITY 9	26.6%	23.9%	12.6%	12.1%	9.7%	82.8%	11.8%	1.1%	16.7%	5.6%	6.5%	7.3%
COMMUNITY 10	9.1%	33.9%	16.3%	18.7%	5.3%	75.3%	16.7%	2.9%	24.3%	5.6%	9.1%	0.4%
COMMUNITY 11	2.5%	0.2%	4.0%	3.3%	0.9%	0.2%	3.5%	0.0%	4.5%	2.0%	0.2%	0.0%
COMMUNITY 12	14.9%	22.8%	27.2%	30.6%	20.9%	9.3%	64.2%	5.6%	92.5%	56.7%	1.1%	5.6%
COMMUNITY 13	15.0%	25.6%	23.2%	30.0%	13.7%	56.2%	33.9%	2.5%	55.7%	26.7%	1.7%	3.4%
COMMUNITY 14	17.3%	58.7%	31.2%	45.2%	5.9%	86.7%	5.0%	3.8%	47.6%	7.0%	3.1%	4.1%
COMMUNITY 15	0.0%	40.5%	56.8%	64.9%	2.7%	45.9%	2.7%	5.4%	59.5%	8.1%	0.0%	10.8%
COMMUNITY 16	9.4%	76.3%	34.5%	60.4%	1.4%	49.6%	1.4%	2.9%	59.7%	2.9%	7.2%	2.9%
COMMUNITY 17	0.0%	16.7%	0.0%	8.3%	0.0%	91.7%	0.0%	8.3%	16.7%	8.3%	0.0%	8.3%
COMMUNITY 18	13.6%	65.9%	15.8%	22.7%	2.6%	70.0%	7.0%	2.9%	23.4%	8.8%	1.8%	3.3%
COMMUNITY 19	12.3%	98.2%	20.2%	22.8%	0.9%	76.3%	7.0%	4.4%	23.7%	7.0%	0.0%	5.3%
COMMUNITY 20	0.0%	58.2%	38.2%	38.6%	2.1%	61.8%	2.1%	2.8%	34.0%	3.9%	3.9%	2.5%
COMMUNITY 21	0.0%	40.8%	6.1%	38.8%	0.0%	49.0%	16.3%	6.1%	40.8%	4.1%	0.0%	2.0%
COMMUNITY 22	3.4%	23.6%	3.4%	29.2%	3.4%	64.0%	16.9%	3.4%	33.6%	3.4%	2.2%	1.1%
COMMUNITY 23	0.0%	100.0%	17.6%	24.3%	6.8%	55.4%	41.9%	4.1%	28.4%	9.5%	9.5%	4.1%
COMMUNITY 24	9.7%	92.7%	10.1%	13.3%	7.8%	45.9%	32.8%	5.2%	24.6%	8.2%	4.3%	6.5%
COMMUNITY 25	29.9%	21.6%	19.3%	18.6%	3.3%	64.5%	10.3%	0.0%	23.3%	2.7%	8.6%	1.3%
COMMUNITY 26	25.5%	12.1%	21.1%	28.9%	7.0%	63.4%	7.0%	0.3%	33.9%	1.7%	17.4%	0.3%
COMMUNITY 27	44.1%	14.7%	0.0%	58.8%	2.9%	26.5%	5.9%	0.0%	61.8%	2.9%	41.2%	0.0%
COMMUNITY 28	25.3%	18.5%	9.6%	20.8%	3.4%	62.0%	13.3%	1.3%	27.9%	6.3%	13.0%	2.1%
COMMUNITY 29	0.0%	14.5%	14.5%	7.9%	6.6%	27.6%	5.3%	0.0%	10.5%	1.3%	2.6%	0.0%
COMMUNITY 30	10.1%	12.7%	17.0%	17.4%	16.7%	7.3%	67.9%	3.0%	27.3%	5.8%	0.7%	2.5%
TOTAL	13.0%	22.5%	16.3%	20.1%	12.2%	26.9%	47.1%	2.8%	29.8%	7.1%	2.4%	3.1%

Table 1. Community Immunization Registry Errors

Common Errors

- Name: Middle names included/excluded and hyphenated names
- HCN: Non-NWT HCN, and not up to date HCN
- Dates: Incorrect format (MM-DD-YYYY)
- Brand: MMR II vs PRIORIX and VARIVAX II vs VARILRIX
- Manufacturer: Wyeth vs Pfizer
- Route: inappropriate for particular vaccination

	Unique Person	Unique Name	Unique HCN
Paper Records	2398 (10%)	1973 (9%)	1829 (16%)
Registry	2912 (34%)	2717 (25%)	2091 (4%)

Table 2. Percentage of Valid Unique Identifiers

Conclusion

The audit of the existing registry identified the challenges of obtaining quality data in public health. The more errors in the immunization registry the more challenging it is to establish an accurate estimate of the territories vulnerability to vaccine preventable diseases.