Role of Health Plan Administrative Claims Data in Participant Recruitment for Pragmatic Clinical Trial – An ADAPTABLE (Aspirin Dosing: A Patient-centric Trial Assessing Benefits and Long-Term Effectiveness) Example

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Background

- Administrative claims have played a role in pragmatic clinical trials. Pragmatic clinical trial designs have been proposed to utilize administrative claims data to identify eligible populations and ascertain clinical events as a cost-efficient alternative to traditional dedicated trial-specific follow-up.[1-4]
- Our previous work has confirmed that eligible study participants identified by administrative claims-based computable phenotype were ADAPTABLE-eligible by reviewing their medical records.
  - *Validation of Adaptable Computable Phenotype as Run on Health Plan Common Data Model Presented at ICPE 2018, Prague, Czech Republic*
- As a Health Plan Research Network (HPRN), HealthCore/Anthem Research Network (HCARN) participates in the ADAPTABLE study by utilizing administrative claims data to identify and outreach to potentially eligible study participants.

Objectives

- To evaluate the HCARN general recruitment outreach process, compare member portal visit and enrollment rates by various outreach strategies, and describe the demographic and clinical characteristics of portal responder and enrolled populations.

Methods

- We conducted two phases of health plan outreach to members and their providers identified via a validated claim-based algorithm from November 2017 through August 2018.
  - **Providers:** outreached to inform and educate providers about the ADAPTABLE study before outreach to patients, and also provided an option to opt out their patients.
  - **Members:** outreached via 2 batches of mails and 1 reminder phone call in Phase 1; and 2 batches of mail or brochure and 1 reminder phone call in Phase 2.
- PCORnet CDM (v3.1) and ADAPTABLE computable phenotype was used for initial identification of the potentially eligible population in administrative claims over the time periods of 1-1-2006 to 4-1-2017 (Phase 1) and 1-1-2006 to 2-2-2018 (Phase 2).
  - **Phase 1:** ADAPTABLE computable phenotype without coronary artery disease (CAD) population
  - **Phase 2:** ADAPTABLE computable phenotype with CAD population

Results

Study population selection

- 1.40 and 1.35 million members were identified with potential eligibility by ADAPTABLE computable phenotype in Phase 1 and Phase 2, respectively.
- Additional selection criteria were applied in order to identify the population eligible for outreach in both Phase 1 and Phase 2. **(Figure 1)**
- At the end of sample selection process, 148,686 and 58,912 members were distinguished as the eligible population for the ADAPTABLE study Phase 1 and Phase 2, respectively.

Figure 1a. Flow chart of sample selection – Phase 1

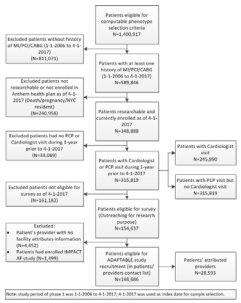
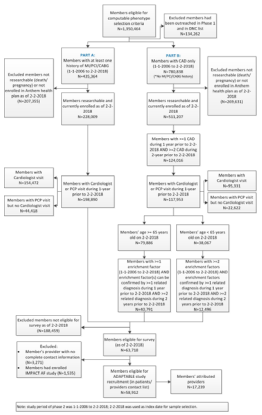


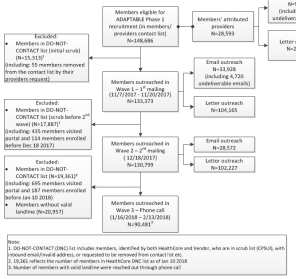
Figure 1b. Flow chart of sample selection – Phase 2



Outreaching strategies

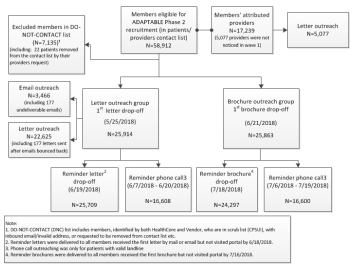
- The week of Oct 16th 2017 began the outreach to providers, resulting in 28,593 attributed PCPs and Cardiologists receiving information about the ADAPTABLE study. Of these, 6 providers declined participation resulting in 55 members excluded from outreach. Additionally 15,258 were removed from another study-specific do-not-contact list.
- November 2017 through January 2018 (13 weeks) was the timeframe in which members were outreached to via e-mail and mail. Total, 301,375 mixed mode outreaches were delivered to 133,373 members. Following the e-mail/mail outreaching, 90,481 phone calls were made beginning in January 2018.

Figure 2a. Outreaching strategies – Phase 1



- In Phase 2, 5,077 attributed PCPs and Cardiologists were informed of the ADAPTABLE study in the first week of May 2018 by e-mail or mail. Of these, 4 providers declined participation resulting in 22 members excluded from outreach. Additionally 7,113 were removed due to study-specific do-not-contact list.
- 51,777 members were outreached via mail/e-mail or brochure after randomizing. May 2018 through July 2018 (9 weeks) was the timeframe in which members were outreached in three waves.
- During the 9 weeks' timeframe, total 51,800 mixed mode outreaches in three waves. Total, 51,800 mixed mode outreaches had been delivered to 25,914 members in the mail/e-mail group, while 50,160 brochures were sent to 25,863 members in the brochure group. Following the mail/e-mail or brochure outreaching, 16,608 and 16,600 phone calls had been made to the two groups respectively.

Figure 2b. Outreaching strategies – Phase 2



Engagement

- As a result of the outreach and recruitment efforts, 1,545 HCARN members visited the ADAPTABLE study portal by entering their assigned golden ticket code by Sep 1st 2018.
- A total of 357 members signed the Informed Consent Form (ICF) and enrolled into this study.
- The brochure resulted in more member visits to the study portal in Phase 2. However, these visits resulted in less participant conversion to enrolled subject. Overall participant recruitment rate was better in Phase 2 (1.81 enrollees per 1,000 outreached members in Phase 1 vs. 2.24 enrollees per 1,000 outreached members in Phase 2).

Table 1a. Conversion rates for 2 Phases of member outreaching (as of 9-1-2018)

	Phase 1 (Before 5/21/2018)		Phase 2 (after 5/21/2018)		Total	
	N	Conversion rate (%)	N	Conversion rate (%)	N	Conversion rate (%)
Outreached members	133,373	100%	51,777	100%	185,150	100%
Visitors	893	0.7%	652	1.3%	1,545	0.8%
Enrollees	241	27.0%	116	17.8%	357	23.1%

Table 1b. Conversion rates for 2 groups of member outreaching in Phase 2 (as of 9-1-2018)

	Phase 2 (after 5/21/2018)			
	Letter/Email Group		Brochure Group	
	N	Conversion rate (%)	N	Conversion rate (%)
Outreached members	25,914	100%	25,863	100%
Visitors	173	0.7%	479	1.9%
Enrollees	54	31.2%	62	12.9%

Figure 3a. Outreaching and weekly portal responders and enrollees – Phase 1

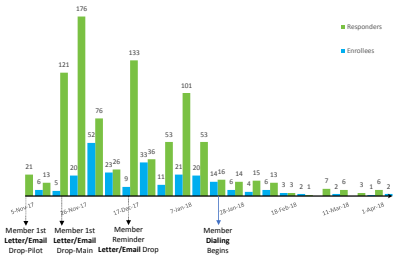
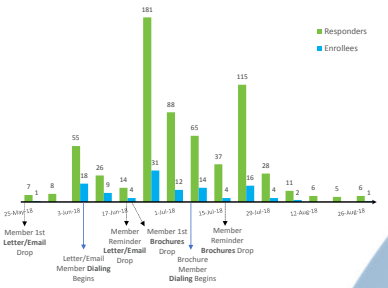


Figure 3b. Outreaching and weekly portal responders and enrollees – Phase 2



Members' demographic and clinical characteristics

- Demographic characteristics of eligible populations in both phases were similar. Since most members with AMI/PCI/CABG history had been screened and outreached in Phase 1, less proportion of members had AMI/PCI/CABG history in Phase 2.
- The average ages of enrollees and portal responders were younger than the eligible population.
- More members from the Midwest responded or participated in this study, with approximately 2.69 enrollees per 1,000 outreached members, than the other three regions.

Table 2a. Demographic and Clinical Characteristics – Phase 1 (as of 9-1-2018)

N	Eligible Members[1] 133,373		Portal Responders[2] 893		Enrollees[3] 241		P-value Responders vs. All	P-value Enrollees vs. All
Age (mean, SD)	75.55	10.61	72.29	9.42	70.24	9.76	<.0001	<.0001
Age >65 yrs old (n, %)	114,008	85.5%	739	82.8%	186	77.2%	0.0188	0.0003
Female (n, %)	50,570	37.9%	212	23.7%	54	22.4%	<.0001	<.0001
Census regions (n, %)								
Northeast	18,678	14.0%	113	12.7%	24	10.0%	0.2539	0.0701
Midwest	43,005	32.2%	348	39.0%	108	44.8%	<.0001	<.0001
South	40,505	30.4%	237	26.5%	58	24.1%	0.0141	0.0332
West	30,939	23.2%	193	21.6%	50	20.7%	0.2757	0.3670
Unknown	246	0.2%	2	0.2%	1	0.4%	0.7800	0.4039
Clinical history (n, %)								
History of AMI	86,224	64.6%	535	59.9%	145	60.2%	0.0031	0.1451
History of PCI	71,236	53.4%	512	57.3%	132	54.8%	0.0180	0.6717
History of CABG	49,267	36.9%	345	38.6%	91	37.8%	0.3003	0.7918
History of CAD	123,696	92.7%	847	94.8%	228	94.6%	0.0157	0.2649
Enrichment factors (n, %):								
Presence of diabetes	68,475	51.3%	414	46.4%	120	49.8%	0.0035	0.6303
Presence of cerebrovascular disease	69,081	51.8%	372	41.7%	76	31.5%	<.0001	<.0001
Presence of peripheral artery disease	47,216	35.4%	251	28.1%	59	24.5%	<.0001	0.0004
Congestive heart failure	53,195	39.9%	261	29.2%	63	26.1%	<.0001	<.0001
Left ventricular ejection fraction <50%	21,532	16.1%	113	12.7%	28	11.6%	0.0036	0.0560
Creatinine >1.5 mg/dL	961	0.7%	4	0.4%	1	0.4%	0.3362	0.5745
LDL cholesterol >130 mg/dL	3,835	2.9%	28	3.1%	7	2.9%	0.6321	0.9784

Table 2b. Demographic and Clinical Characteristics – Phase 2 (as of 9-1-2018)

N	Eligible Members[1] 51,777		Portal Responders[2] 652		Enrollees[3] 116		P-value Responders vs. All	P-value Enrollees vs. All
Age (mean, SD)	74.42	11.05	69.52	9.37	68.18	11.43	<.0001	<.0001
Age >65 yrs old (n, %)	43,599	84.2%	494	75.8%	80	69.0%	<.0001	<.0001
Female (n, %)	22,729	43.9%	213	32.7%	49	42.2%	<.0001	0.7189
Census regions (n, %)								
Northeast	9,587	18.5%	101	15.5%	20	17.2%	0.0454	0.7235
Midwest	15,739	30.4%	238	36.5%	50	43.1%	0.0006	0.0029
South	15,259	29.5%	200	30.7%	34	29.3%	0.4973	0.9698
West	11,192	21.6%	113	17.3%	12	10.3%	0.0075	0.0032
Clinical history (n, %)								
History of AMI	19,569	37.8%	243	37.3%	47	40.5%	0.7809	0.5449
History of PCI	14,190	27.4%	216	33.1%	35	30.2%	0.0010	0.5037
History of CABG	8,836	17.1%	146	22.4%	24	20.7%	0.0003	0.2989
History of CAD	48,275	93.2%	619	94.9%	110	94.8%	0.0815	0.4945
Enrichment factors (n, %):								
Presence of diabetes	30,175	58.3%	357	54.8%	65	56.0%	0.0663	0.6236
Presence of cerebrovascular disease	26,045	50.3%	270	41.4%	49	42.2%	<.0001	0.0821
Presence of peripheral artery disease	18,254	35.3%	193	29.6%	35	30.2%	0.0024	0.2514
Congestive heart failure	20,957	40.5%	204	31.3%	35	30.2%	<.0001	0.0236
Left ventricular ejection fraction <50%	8,922	17.2%	91	14.0%	20	17.2%	0.0259	0.9978
Creatinine >1.5 mg/dL	458	0.9%	3	0.5%	1	0.9%	0.2441	0.9793
LDL cholesterol >130 mg/dL	2,609	5.0%	40	6.1%	9	7.8%	0.1979	0.1801

[1]Members eligible for ADAPTABLE study outreaching, fulfilled all selection criteria and not in DO-NOT-CONTACT list.
[2]Members visited ADAPTABLE study portal by the assigned golden ticket number.
[3]Members consented to ADAPTABLE study and randomized to treatment group.

Conclusions

- This study demonstrates that HCARN, an HPRN, has built a sustainable research environment with an ability to conduct pragmatic clinical trial recruitment and enrollment.
- Health plans have an ability to directly engage membership to participate in pragmatic clinical trials through a variety of low touch outreach methods.

Discussion

- The longitudinal claims identify eligible members with long-term retrospective data and HCARN demonstrates an expanded capacity of cross-network outreach.
- A potential strength of our enrollment via administrative claims data is our ability to pragmatically collect clinical outcomes across health systems.
  - *Administrative Claims Data to Support Pragmatic Clinical Trial Outcome Ascertainment Using PCORnet ADAPTABLE Trial as an Example. Presented at ICPE 2018, Prague, Czech Republic*

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