Transitioning to deterministic identity resolution:

Why it's imperative to improve reach of brand eligible patients as part of your omnichannel marketing program

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medicx

Inflammatory Bowel Disease (IBD) Digital Campaign

Analysis Overview

This analysis compares a deterministic cookie-less tagging and resolution process with a traditional "cookie" tagging and resolution approach for audience deployment and campaign measurement in an Inflammatory Bowel Disease (IBD) brand digital campaign. The impressions data for this campaign were collected between Sept. and Nov. 2022 and includes:

- → A comparison of the identity resolution funnel from impressions through patient linked impressions
- → Measuring sample representativeness for both ID resolution approaches
- → Matched test and control analyses
- → Multi-touch attribution-based channel contributions

Campaign Overview

Clinical Conditions:

- → Inflammatory Bowel Disease (IBD)

Channels:

- → Digital Display
- → Online Video (OLV)

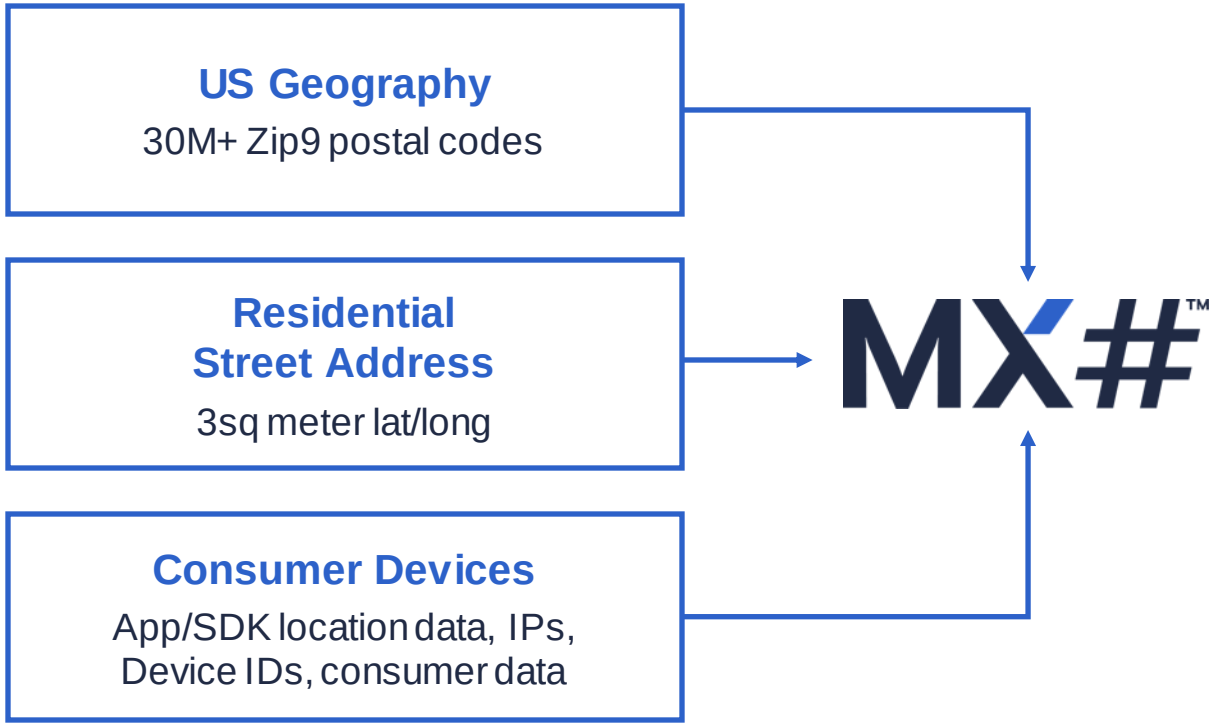
ID resolution for measurement:

- → Cookie based
- → MX# based

MX# — Advanced Identity Resolution

Cookie-less solution enables consistent Identity across media, devices, and other touchpoints

**RESOLVED ID IS DETERMINISTIC, BASED ON LOCATION,
AND NOT PROBABILISTIC AS WITH *COOKIE-BASED SOLUTIONS*.**



- Built for Life Science industry
- Deterministic methodology
- Provides/improves consumer privacy
- Processes >7T datapoints weekly
- Increases biddable impressions
- Increases measurable impressions
- Beats industry match rates across touchpoints

Digital Campaign ID Resolution Funnel

MX# Resolved More Impressions Than Cookie-based Approaches.

Resolution Funnel		Cookie	MX#
All consumers	**Total Impressions**	18.9MM	17.6MM
	Impressions with IDs	3.9MM	17.6MM
	Unique IDs		993K
	(HH) Matched IP addresses		470k
APLD patients	**Unique DPLD Patients**	750K	1.1MM
	Number of unique HH		242K
	DPLD patient matched impressions	2.5MM	2.5MM
	Audience Quality – 3 yr lookback	**1.06%**	**1.80%***
	Unique APLD patients 18+	599,210	848,816

- → MX# resolves more impressions at top of the id resolution funnel in comparison to cookies
  - → MX#: 17.6MM (100%) of the total 17.6MM of the viewed impressions
  - → 3.9MM impressions (20%) for cookie-based id resolution.
- → MX# also delivers significantly higher Audience Quality of 1.80% (based on unique households) in comparison to an AQ of 1.06% for cookies-based targeting.

- *MX# impressions were resolved 3+ months post exposure compared to weekly processing for cookie-based impressions*
- ***For MX# ID resolution- More current impressions file processed within the last 45 days for the same campaign resulted in 60% more resolved impressions***

Comparing Demographics – IBD

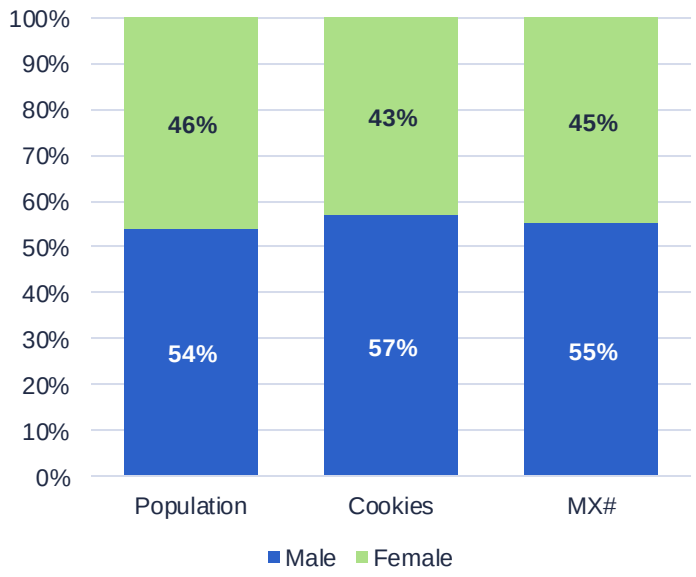
IBD Population (US), Cookie and MX# cohorts

Cross-entropy Shows MX# Cohort Representative of the IBD Population

Gender

MX# based gender distribution is closer to the IBD population.

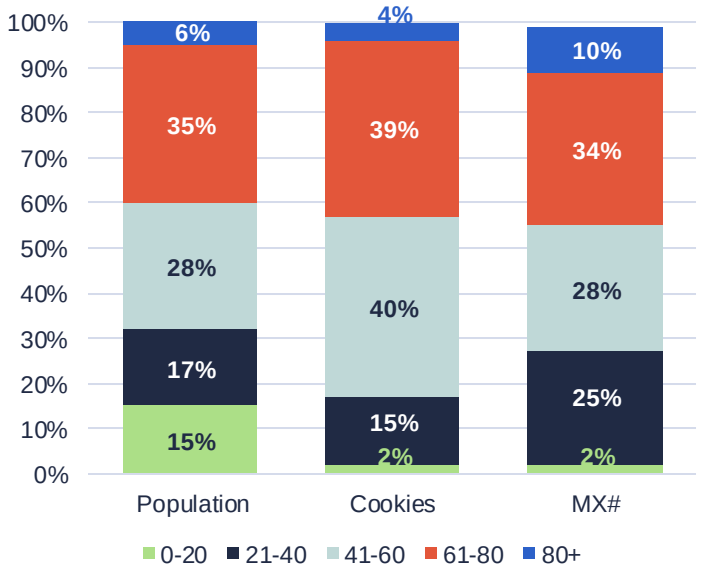
→ Cross entropy measure indicates similar distributions between cookie based and Mx#



Age

MX# and cookie-based age distributions are both representative of the IBD population.

→ Both MX# and cookie-based cohorts showed cross-entropy values of 2.44 in comparison to 2.13 for the IBD population

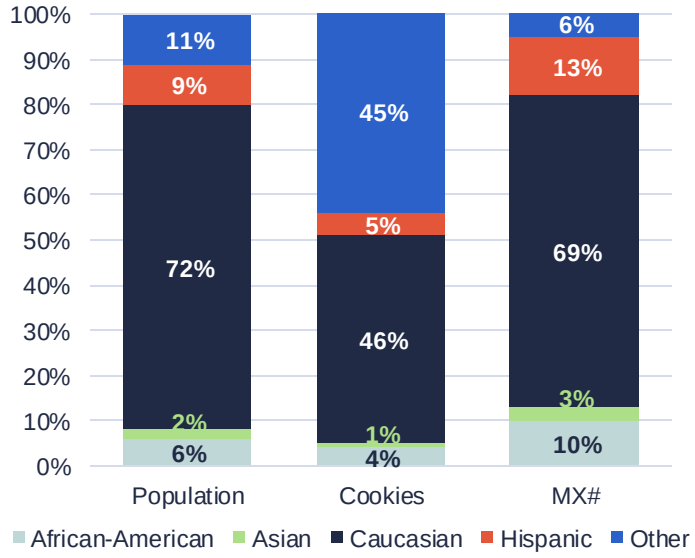


Advertising targets must be older than 18 years of age.

Ethnicity

MX# based ethnicity distribution is closer to the IBD population.

→ MX# cross-entropy value of 1.40 is closer to the population value of 1.36 compared to cookie cross-entropy value of 1.73.



Comparing Comorbidities – MX# To Cookie Based

Similar Distributions of Related Co-Morbidities

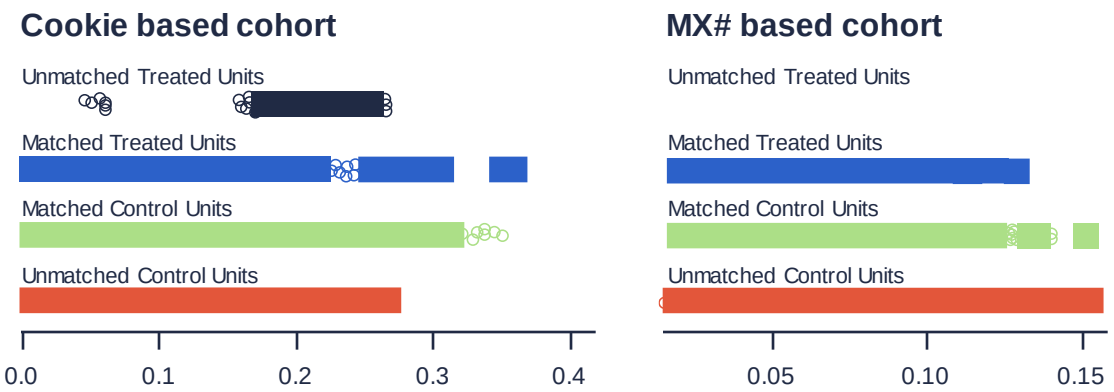
Comorbidity	Cookie	MX#
Anxiety	4.0%	4.4%
Anemia	1.6%	1.9%
Other Fatigue	4.0%	4.1%
Anal Bleeding	0.5%	0.6%
Unspecified Fever	1.4%	1.6%
Liver Disease	1.2%	1.2%
Abnormal Weight Loss	0.6%	0.8%
Pain / Opioid use	0.7%	0.7%
Colorectal cancer	0.1%	0.1%

MX# COHORT COMORBIDITIES ARE CONSISTENT WITH COOKIE BASED COMORBIDITIES

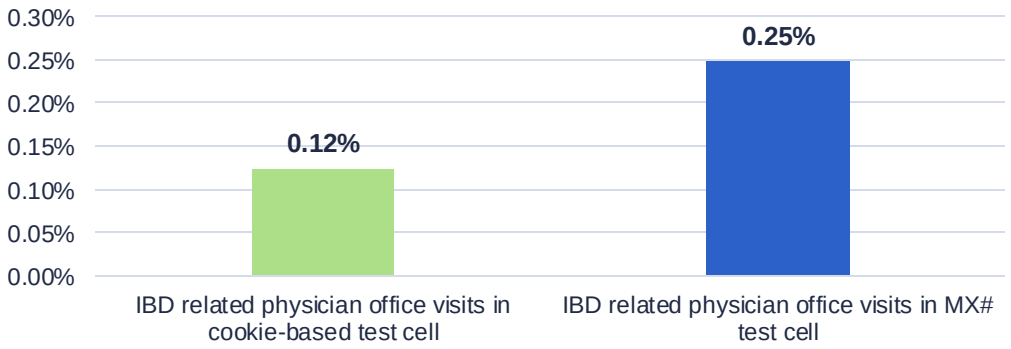
Test and Control Analysis

Test vs control analysis was executed for both cookie and MX# cohorts.

Distribution of Propensity Scores



- Test and control patients were 1:1 matched on IBD diagnosis history in the 24-mo. pre-period, age, gender, and location
- Test cohorts were adequately matched to their controls
- Approx 0.13% of test (exposed) cookie-based patients were not able to be matched due to missing patient location



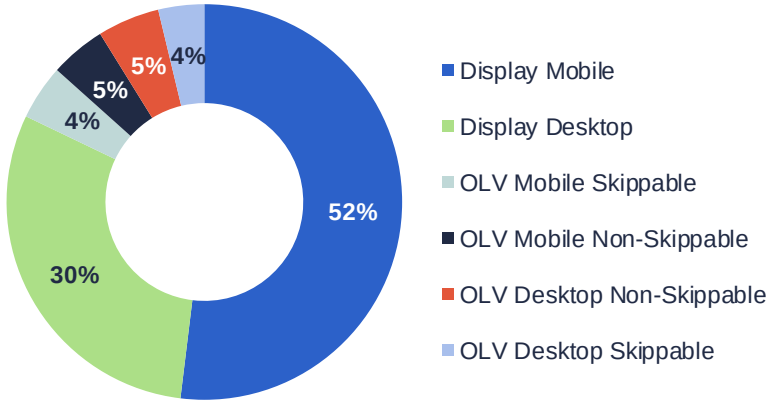
- MX# test results were not significantly different from its match control cell. Cookie based test results were significantly lower than its matched control.
- Office visits within 90 days post-exposure
- MX# test results are based on patients within a household

0.25% of MX# patients exposed to advertising (test) had IBD related physician office visits compared to 0.12% in cookie-based test cell.

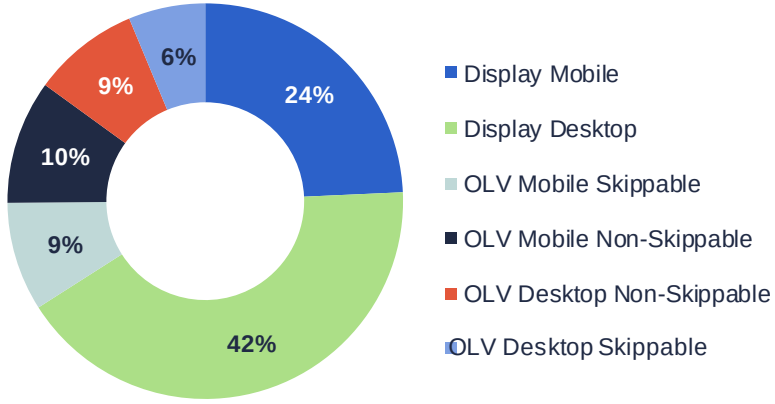
Multi-Touch Attribution – Leveraging Shapley Values

Raw Impressions

MX# Cohort Total Impressions 2,565,826



Cookie Cohort Total Impressions 2,388,969



Shapley attributions for the MX# cohort differ significantly from cookie cohort

Resolution Approach	Display - Mobile	Display - Desktop	OLV – Mobile - Skip	OLV – Mobile - Non-Skip	OLV – Desktop - Non-Skip	OLV – Desktop - Skip
MX#	14%	14%	0%	**33%**	**31%**	8%
Cookie Based	26%	29%	1%	21%	16%	7%

Overall Conclusions

Both the MX# and Cookie based samples were equally representative of the IBD population for age and gender. However, the MX# sample was more representative of the IBD population for ethnicity.

Our results show that the MX# campaign is more targeted with a higher AQ in comparison to the cookie-based approach.

The MX# test group had a higher rate of IBD related physician office visits at 0.25% in comparison to 0.12% for the cookie-based test cell.

Shapley value-based channel attributions for MX# are significantly different from cookie-based attributions, possibly influencing different investment decisions

MX# shows a much higher proportion of on-line video impacting post exposure office visits for IBD compared to both the cookie-based cohort and raw impression counts

Appendix

Deterministic to Cookie Based ID Resolution Comparison

Comparisons	Cookie based ID Resolution	MX# based ID Resolution
Deterministic mapping > probabilistic mapping	Cookies are probabilistically mapped to an offline location by aggregating online data to determine attributes of a user → Cookies = Behavior trackers	IP addresses are deterministically mapped to an offline location by delineating online data of a user to their household → IP addresses = Location trackers
Stability of an IP address > Stability of a cookie	Cookies stay with a user for an average of 10-14 days thus consumers may be duplicated over time	IP addresses stay with a street address for an average of 9 months or until the router is updated
Stability of a street address > Stability of a user	Cookies are tied to user browsers and users move around	IP addresses are tied to a physical location, which remains constant

Multi-Touch Attribution (MTA)

Overview / Recognizing interactions

- → Multi-touch attribution is an approach to assign credit to different marketing touchpoints or channels that contribute to a conversion event, such as a purchase or a sign-up.
- → Traditional attribution models such as first or last touch assign credit to individual touchpoints in isolation and ignore interactions.
- → In contrast, attribution models like Shapley Value or Markov adopt a more nuanced and precise approach to understanding how different channels work together to contribute to the health outcome event.
  - Shapley value allocates credit to each touchpoint by accounting for the interactions between these touchpoints.
  - Markov chains considers the sequence of touchpoints to model the probability of transitioning from one touchpoint to another and assigning a weight to all the touchpoints.