Article DOI: https://doi.org/10.3201/eid2804.212014

Decrease in Tuberculosis Cases during COVID-19 Pandemic as Reflected by Outpatient Pharmacy Data, United States, 2020

Appendix

Supplemental Methods

IQVIA Database Overview

National Prescription Audit (NPA) captures new and refill prescriptions. NPA Extended Insights supplies more granular prescription data. NPA New to Brand (NTB) contains data on the first time a patient uses a brand. NPA Regional provides prescriptions at the state level (all other databases are at the national level). For all NPA databases, the only filter used was to set the Combined Molecule to isoniazid (INH), pyrazinamide (PZA), or "azithromycin." In the "no filter" analyses, no filters were set. These filters subset the IQVIA data to all prescriptions that contain the identified molecule as the active ingredient. Appendix Table 1 lists the timeframe and metrics used for each module while Appendix Table 2 defines each metric.

The previous modules are at the prescription-level, while Total Patient Tracker (TPT) is at the patient-level. It eliminates duplicate patients and multiple prescription fills to generate a final projected patient count. TPT data start in January 2002, but our analyses started in January 2006 because of the unreliability of data before then. TPT data were generated by creating a study that searched for INH or PZA as the only molecule and then generating a molecule report that excluded prescriptions from veterinarian specialties.

Percent Change Calculation

Percent changes were used for general trends and were calculated as:

$$\frac{number\ of\ cases\ at\ time_{i}-\ number\ of\ cases\ at\ time_{i-1}}{number\ of\ cases\ at\ time_{i-1}}*100$$

where $time_i$ indicates the year or month of interest and $time_{i-1}$ indicates the preceding year or month.

Linear Models

For each drug, we tested 3 different linear models: no other covariates, month as a covariate, and quarter as a covariate. For both INH and PZA, the model with quarter had the best fit (as measured by lowest Akaike Information Criterion (1) and highest R²), although all models had similar fits (data not shown). We therefore fit a linear model between IQVIA and NTSS data, 2006–2019, with quarter as categorical covariate:

$$IQVIA = \beta_0 + \beta_1 NTSS + \beta_2 quarter + \varepsilon$$

References

- 1. Aikake H. A new look at the statistical model identification. IEEE Trans Automat Contr. 1974;19:716–23. https://doi.org/10.1109/TAC.1974.1100705
- 2. Hyndman RJ, Athanasopoulos G. Forecasting: principles and practice. Melbourne, Australia: OTexts; 2018 [cited 2021 Jul 27]. https://otexts.com/fpp2

Appendix Table 1. Overview of IQVIA prescription modules used to examine decrease in tuberculosis cases during COVID-19 pandemic. United States 2020*

pariacinic, ornica otatos, 2020		
Module	Earliest prescription data used	Metrics
NPA	February 2015	NRx, RRx,TRx, EUNRx, EURRx, EUTRx
NPA Extended Insights	February 2018	NRx, RRx,TRx, EUNRx, EURRx, EUTRx
NPA NTB	February 2015	NRx, TRx, NBRx, NTS Rx, Cont Rx, Switch Add Rx
NPA Regional	February 2019	NRx, RRx,TRx, EUNRx, EURRx, EUTRx
TPT	January 2006	Projected patient count totals

^{*}Metrics are defined in Appendix Table 2. NPA, National Prescription Audit; NTB, New to Brand; TPT, Total Patient Tracker.

Appendix Table 2. Overview of IQVIA prescription metrics

Metrics	Description
NRx	New prescription counts
RRx	Refill prescription counts
TRx	Total (new plus refill) prescription counts; TRx = NRx + RRx
EUNRx	Number of new dispensed units
EURRx	Number of refill dispensed units
EUTRx	Total number of dispensed units; EUTRx = EUNRx + EUTRx
NTS Rx	New therapy start prescription representing patients who have not used any therapy within the USC* market in the last 12 mo
Switch Add Rx	Switch/add prescriptions representing patients who in the past 12 mo have not used the brand previously but has used another drug in the USC* market in that time
NBRx	New to brand prescriptions representing the first-time use of a product within the previous 12 mo; NBRx = NTS Rx + Switch Add Rx
Cont Rx	Continuation on prescription representing repeat customers prescribed who have used the product in the past year

^{*}USC, uniform system of classification, developed by IQVIA to categorize products in same or similar markets.

Appendix Table 3. Correlations between NTSS and IQVIA isoniazid metrics*

Timeframe	NTSS aggregation date	NTSS resistance inclusion	IQVIA database	IQVIA metric	No. timepoints compared	Pearson correlation coefficient
Month	Case date	No patients with drug	TPT	Projected patient count	216	0.888
Month	Treatment start	resistance in NTSS No patients with drug	TPT	totals Projected patient count	216	0.888
Month	date Treatment start date	resistance in NTSS All NTSS counts	TPT	totals Projected patient count totals	216	0.885
Month	Case date	All NTSS counts	TPT	Projected patient count totals	216	0.854
Quarter	Case date	No patients with drug resistance in NTSS	TPT	Projected patient count totals	168	0.842
Quarter	Treatment start date	No patients with drug resistance in NTSS	TPT	Projected patient count totals	168	0.831
Quarter	Treatment start date	All NTSS counts	TPT	Projected patient count totals	168	0.825
Quarter	Case date	All NTSS counts	TPT	Projected patient count totals	168	0.782
Month	Treatment start date	All NTSS counts	NPA NTB	NBRx	59	0.644
Month	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	NBRx	59	0.640
Month	Treatment start date Treatment start	All NTSS counts	NPA NTB	NTS Rx NTS Rx	59 59	0.631
Month Month	Treatment start date Case date	No patients with drug resistance in NTSS All NTSS counts	NPA NTB	NBRx	59 59	0.630 0.625
Month	Case date	No patients with drug resistance in NTSS	NPA NTB	NBRx	59	0.623
Month	Case date	No patients with drug resistance in NTSS	NPA NTB	NTS Rx	59	0.622
Month	Case date	All NTSS counts	NPA Extended Insights	NRx	23	0.621
Month Month	Case date Case date	All NTSS counts All NTSS counts	NPA NTB NPA Extended	NTS Rx EUNRx	59 23	0.616 0.610
Month	Case date	No patients with drug resistance in NTSS	Insights NPA NTB	NRx	59	0.595
Month	Case date	No patients with drug resistance in NTSS	NPA	NRx	59	0.584
Month	Case date	No patients with drug resistance in NTSS	NPA	EUNRx	59	0.576
Month	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	NRx	59	0.574
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA	EUNRx	20	0.566
Month	Treatment start date	No patients with drug resistance in NTSS	NPA	NRx	59	0.563
Month	Treatment start date	All NTSS counts	NPA NTB	NRx	59	0.554
Month	Treatment start date	All NTSS counts	NPA	NRx	59	0.541
Quarter	Treatment start date	All NTSS counts	NPA	EUNRx	20	0.539
Month	Case date	All NTSS counts	NPA Extended Insights	TRx	23	0.538
Month	Case date	All NTSS counts	NPA Extended Insights	EUTRx	23	0.526
Month	Treatment start date	No patients with drug resistance in NTSS	NPA	EUNRx	59	0.518
Quarter	Treatment start date	All NTSS counts	NPA NTB	NTS Rx	20	0.518

Timeframe	NTSS aggregation date	NTSS resistance inclusion	IQVIA database	IQVIA metric	No. timepoints compared	Pearson correlation coefficient
Quarter	Treatment start	All NTSS counts	NPA NTB	NBRx	20	0.513
Quarter	date	All N133 counts	MANID	NDIX	20	0.515
Month	Case date	All NTSS counts	NPA NTB	NRx	59	0.511
Quarter	Treatment start	No patients with drug	NPA NTB	NRx	20	0.509
	date	resistance in NTSS				
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	NTS Rx	20	0.508
Month	Case date	No patients with drug	NPA	NRx	23	0.501
WOTHER .	oute date	resistance in NTSS	Extended	TH OX	20	0.001
Quarter	Treatment start	No patients with drug	Insights NPA NTB	NBRx	20	0.499
Quarter	date	resistance in NTSS	NEANID	INDIX	20	0.499
Quarter	Treatment start	No patients with drug	NPA	NRx	20	0.498
Quartor	date	resistance in NTSS		11100	20	0.100
Month	Treatment start	No patients with drug	NPA	NRx	23	0.497
	date	resistance in NTSS	Extended			
			Insights			
Quarter	Treatment start	All NTSS counts	NPA NTB	NRx	20	0.496
	date					
Month	Treatment start date	All NTSS counts	NPA	EUNRx	59	0.496
Month	Treatment start	All NTSS counts	NPA	EUNRx	23	0.494
	date		Extended			
			Insights			
Month	Case date	No patients with drug	NPA	EUNRx	23	0.494
		resistance in NTSS	Extended			
			Insights			
Month	Case date	All NTSS counts	NPA	NRx	59	0.494
Month	Treatment start	All NTSS counts	NPA	NRx	23	0.492
	date		Extended			
			Insights	==		0.400
Quarter	Treatment start	No patients with drug	NPA	EUTRx	20	0.489
N.4	date	resistance in NTSS	NIDA	FUND	00	0.400
Month	Treatment start	No patients with drug	NPA	EUNRx	23	0.488
	date	resistance in NTSS	Extended			
Quarter	Treatment start	All NTSS counts	Insights NPA	NRx	20	0.484
Quarter	date	All N133 Counts	INI A	NIXA	20	0.404
Month	Case date	No patients with drug	NPA	EUTRx	59	0.481
		resistance in NTSS				0
Quarter	Case date	No patients with drug	NPA	EUNRx	20	0.464
		resistance in NTSS				
Month	Treatment start	No patients with drug	NPA NTB	TRx	59	0.464
	date	resistance in NTSS				
Month	Case date	All NTSS counts	NPA	EUNRx	59	0.462
Month	Treatment start	No patients with drug	NPA	TRx	59	0.460
N.4	date	resistance in NTSS	NIDA	TD	50	0.450
Month	Case date	No patients with drug	NPA	TRx	59	0.459
Ougston	Transferent start	resistance in NTSS	NDA	CUTD _V	20	0.450
Quarter	Treatment start date	All NTSS counts	NPA	EUTRx	20	0.458
Quarter	Case date	All NTSS counts	NPA NTB	NTS Rx	20	0.458
Month	Case date	No patients with drug	NPA NTB	TRx	59	0.457
WOTH	Case date	resistance in NTSS	NIANID	IIVA	39	0.437
Quarter	Case date	All NTSS counts	NPA NTB	NBRx	20	0.450
Month	Treatment start	No patients with drug	NPA	EUTRx	59	0.441
	date	resistance in NTSS				
Month	Treatment start	All NTSS counts	NPA NTB	TRx	59	0.440
	date					
Month	Treatment start	All NTSS counts	NPA	TRx	59	0.435
	date					
Quarter	Case date	All NTSS counts	NPA	EUNRx	20	0.434
Month	Case date	All NTSS counts	NPA	RRx	23	0.420
			Extended			
			Insights			
Month	Treatment start	All NTSS counts	NPA	EUTRx	59	0.415

Timeframe	NTSS aggregation date	NTSS resistance inclusion	IQVIA database	IQVIA metric	No. timepoints compared	Pearson correlation coefficient
Month	Treatment start	No patients with drug	NPA	TRx	23	0.413
Month	date	resistance in NTSS	Extended Insights	TTX	20	0.410
Month	Treatment start date	All NTSS counts	NPA Extended	EUTRx	23	0.408
Month	Case date	All NTSS counts	Insights NPA	EURRx	23	0.408
Month	Treatment start	No patients with drug	Extended Insights NPA	EUTRx	23	0.407
VIOLITI	date	resistance in NTSS	Extended Insights	201100	20	0.407
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA	EURRx	20	0.401
Month	Case date	No patients with drug resistance in NTSS	NPA Extended Insights	TRx	23	0.401
Month	Treatment start date	All NTSS counts	NPA Extended Insights	TRx	23	0.400
Quarter	Case date	All NTSS counts	NPA NTB	NRx	20	0.399
Month	Case date	No patients with drug resistance in NTSS	NPA Extended	EUTRx	23	0.398
Quarter	Treatment start	No patients with drug resistance in NTSS	Insights NPA	TRx	20	0.395
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	TRx	20	0.389
Quarter	Case date	All NTSS counts	NPA	NRx	20	0.383
Month	Case date	All NTSS counts	NPA NTB	TRx	59	0.382
Quarter	Treatment start date	All NTSS counts	NPA	TRx	20	0.377
Month Quarter	Case date Treatment start date	All NTSS counts All NTSS counts	NPA NPA NTB	TRx TRx	59 20	0.375 0.373
Month	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	Cont Rx	59	0.372
Month	Case date	No patients with drug resistance in NTSS	NPA	EURRx	59	0.370
Month	Case date	No patients with drug resistance in NTSS	NPA NTB	Cont Rx	59	0.370
Quarter Quarter	Treatment start date Case date	All NTSS counts No patients with drug	NPA NPA	EURRx EUTRx	20 20	0.369 0.367
Month	Case date	resistance in NTSS All NTSS counts	NPA	EUTRX	59 59	0.359
Quarter	Case date	No patients with drug resistance in NTSS	NPA NTB	NRx	20	0.354
Month	Treatment start date	No patients with drug resistance in NTSS	NPA	RRx	59	0.351
Month	Treatment start date	No patients with drug resistance in NTSS	NPA	EURRx	59	0.349
Quarter	Case date	No patients with drug resistance in NTSS	NPA NTB	NRx	20	0.346
Quarter Month	Case date Treatment start	No patients with drug resistance in NTSS All NTSS counts	NPA NTB	NTS Rx Cont Rx	20 59	0.345 0.342
Quarter	date Treatment start	No patients with drug	NPA NTB	Cont Rx	20	0.339
Month	date Case date	resistance in NTSS No patients with drug	NPA	RRx	59	0.331
Month	Treatment start	resistance in NTSS All NTSS counts	NPA	RRx	59	0.325
Quarter	date Case date	No patients with drug resistance in NTSS	NPA NTB	NBRx	20	0.325
Quarter	Case date	All NTSS counts	NPA	EUTRx	20	0.324

Timeframe	NTSS aggregation date	NTSS resistance inclusion	IQVIA database	IQVIA metric	No. timepoints compared	Pearson correlation coefficient
Month	Treatment start	All NTSS counts	NPA	EURRx	59	0.321
MOHIH	date	All N133 Counts	NEA	EURKX	39	0.321
Quarter	Treatment start date	All NTSS counts	NPA NTB	Cont Rx	20	0.314
Month	Treatment start	No patients with drug	NPA	RRx	23	0.303
	date	resistance in NTSS	Extended			
			Insights			
Month	Treatment start	No patients with drug	NPA	EURRx	23	0.300
	date	resistance in NTSS	Extended			
0	T	NI - makingka suikka dusus	Insights	DD	20	0.000
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA	RRx	20	0.298
Month	Treatment start	All NTSS counts	NPA	EURRx	23	0.297
Wichter	date	71111100 0001110	Extended	LOTTOX	20	0.201
			Insights			
Month	Treatment start	All NTSS counts	NPA	RRx	23	0.283
	date		Extended			
_	_		Insights			
Quarter	Treatment start	All NTSS counts	NPA	RRx	20	0.278
Month	date	No potionto with draw	NPA	EUDD _v	23	0.277
Month	Case date	No patients with drug resistance in NTSS	Extended	EURRx	23	0.277
		resistance in NTOO	Insights			
Month	Case date	No patients with drug	NPA	RRx	23	0.276
		resistance in NTSS	Extended			
			Insights			
Month	Case date	All NTSS counts	NPA NTB	Cont Rx	59	0.275
Quarter	Case date	All NTSS counts	_ NPA	EUNRx	8	0.267
			Extended			
Quarter	Case date	No patients with drug	Insights NPA	EURRx	20	0.265
Quarter	Case date	resistance in NTSS	NEA	EURKX	20	0.203
Quarter	Case date	All NTSS counts	NPA	TRx	20	0.260
Quarter	Case date	All NTSS counts	NPA NTB	TRx	20	0.259
Month	Case date	All NTSS counts	NPA	RRx	59	0.256
Month	Case date	All NTSS counts	NPA	EURRx	59	0.247
Quarter	Case date	No patients with drug	NPA	TRx	20	0.216
0	0	resistance in NTSS	NIDA	EUDD	20	0.040
Quarter	Case date Case date	All NTSS counts	NPA NPA NTB	EURRx TRx	20 20	0.212 0.206
Quarter	Case date	No patients with drug resistance in NTSS	NEANID	ITX	20	0.200
Quarter	Case date	All NTSS counts	NPA NTB	Cont Rx	20	0.190
Quarter	Case date	All NTSS counts	NPA	EUTRx	8	0.186
			Extended			
			Insights			
Quarter	Case date	No patients with drug	NPA NTB	Cont Rx	20	0.162
Ouerter	Casa data	resistance in NTSS All NTSS counts	NDA	DDv	20	0.450
Quarter Quarter	Case date Case date	All NTSS counts	NPA NPA	RRx NRx	20 8	0.152 0.129
Quarter	Oasc date	All 14100 counts	Extended	NIX	O	0.123
			Insights			
Quarter	Case date	All NTSS counts	NĂA	EURRx	8	0.105
			Extended			
			Insights			
Quarter	Case date	No patients with drug	NPA	RRx	20	0.105
Quarter	Casa data	resistance in NTSS All NTSS counts	NPA	TRx	8	0.048
Quarter	Case date	All N133 Counts	Extended	ITX	0	0.046
			Insights			
Quarter	Treatment start	All NTSS counts	NPA	EUNRx	8	0.030
	date		Extended			
			Insights			
Quarter	Case date	No patients with drug	NPA	EUNRx	8	0.000
		resistance in NTSS	Extended			
			Insights			

	NTSS aggregation		IQVIA		No. timepoints	Pearson correlation
Timeframe	date	NTSS resistance inclusion	database	IQVIA metric	compared	coefficient
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA Extended	EUNRx	8	-0.004
Quarter	Case date	All NTSS counts	Insights NPA Extended Insights	RRx	8	-0.015
Month	Treatment start date	All NTSS counts	NPA NTB	Switch Add Rx	59	-0.038
Quarter	Treatment start date	All NTSS counts	NPA Extended Insights	EUTRx	8	-0.052
Month	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	Switch Add Rx	59	-0.071
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA Extended Insights	EUTRx	8	-0.081
Quarter	Treatment start date	All NTSS counts	NPA Extended Insights	NRx	8	-0.085
Quarter	Case date	No patients with drug resistance in NTSS	NPA Extended Insights	EUTRx	8	-0.092
Month Quarter	Case date Treatment start date	All NTSS counts No patients with drug resistance in NTSS	NPA NTB NPA Extended Insights	Switch Add Rx NRx	59 8	-0.097 -0.113
Quarter	Treatment start date	All NTSS counts	NPA Extended Insights	EURRx	8	-0.126
Quarter	Case date	No patients with drug resistance in NTSS	NPA Extended Insights	NRx	8	-0.128
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA Extended Insights	EURRx	8	-0.149
Quarter	Treatment start date	All NTSS counts	NPA Extended Insights	TRx	8	-0.161
Quarter	Case date	No patients with drug resistance in NTSS	NPA Extended Insights	EURRx	8	-0.174
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA Extended Insights	TRx	8	-0.180
Quarter	Case date	No patients with drug resistance in NTSS	NPA Extended Insights	TRx	8	-0.202
Quarter	Treatment start date	All NTSS counts	NPA Extended Insights	RRx	8	-0.217
Month	Case date	No patients with drug resistance in NTSS	NPA NTB	Switch Add Rx	59	-0.225
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA Extended Insights	RRx	8	-0.229
Quarter	Treatment start date	All NTSS counts	NPA NTB	Switch Add Rx	20	-0.242
Quarter	Case date	No patients with drug resistance in NTSS	NPA Extended Insights	RRx	8	-0.257
Quarter	Case date	All NTSS counts	NPA NTB	Switch Add Rx	20	-0.274
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	Switch Add Rx	20	-0.296
Quarter	Case date	No patients with drug resistance in NTSS ribed in Appendix Tables 1 and 2.	NPA NTB	Switch Add Rx	20	-0.435

^{*}IQVIA database and metrics are described in Appendix Tables 1 and 2. NTSS, National Tuberculosis Surveillance System.

Appendix Table 4. Correlations between NTSS and IQVIA pyrazinamide metrics*

Timeframe	NTSS aggregation date	NTSS resistance inclusion	IQVIA database	IQVIA metric	No. timepoints compared	Pearson correlation coefficient
Quarter	Treatment start	No patients with drug	TPT	Projected Patient Count	168	0.879
	date	resistance in NTSS		Totals		
Quarter	Treatment start date	All NTSS counts	TPT	Projected Patient Count Totals	168	0.874
Month	Treatment start date	No patients with drug resistance in NTSS	TPT	Projected Patient Count Totals	216	0.858
Month	Treatment start date	All NTSS counts	TPT	Projected Patient Count Totals	216	0.854
Month	Case date	No patients with drug resistance in NTSS	TPT	Projected Patient Count Totals	216	0.852
Quarter	Case date	No patients with drug resistance in NTSS	TPT	Projected Patient Count Totals	168	0.852
Month	Case date	All NTSS counts	TPT	Projected Patient Count Totals	216	0.843
Quarter	Case date	All NTSS counts	TPT	Projected Patient Count Totals	168	0.824
Month	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	NBRx	59	0.658
Month	Treatment start date	All NTSS counts	NPA NTB	NBRx	59	0.651
Month	Case date	No patients with drug resistance in NTSS	NPA NTB	NBRx	59	0.605
Month	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	NTS Rx	59	0.576
Month	Treatment start date	No patients with drug resistance in NTSS	NPA	NRx	59	0.574
Month	Treatment start date	All NTSS counts	NPA NTB	NTS Rx	59	0.565
Month	Treatment start date	All NTSS counts	NPA	NRx	59	0.559
Month	Treatment start date	All NTSS counts	NPA NTB	NRx	59	0.558
Month	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	NRx	59	0.555
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	NTS Rx	20	0.549
Month	Case date	No patients with drug resistance in NTSS	NPA NTB	NTS Rx	59	0.545
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	NBRx	20	0.544
Month	Treatment start date	No patients with drug resistance in NTSS	NPA	TRx	59	0.520
Month	Case date	No patients with drug resistance in NTSS	NPA	NRx	59	0.518
Month	Case date	All NTSS counts	NPA NTB	NBRx	59	0.517
Quarter	Treatment start date	All NTSS counts	NPA NTB	NTS Rx	20	0.514
Quarter	Treatment start date	All NTSS counts	NPA NTB	NBRx	20	0.512
Month	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	TRx	59	0.502
Month	Case date	No patients with drug resistance in NTSS	NPA NTB	NRx	59	0.502
Month	Treatment start date	All NTSS counts	NPA NTB	TRx	59	0.501
Month	Treatment start date	All NTSS counts	NPA	TRx	59	0.493
Month	Treatment start date	All NTSS counts	NPA Extended Insights	NRx	23	0.485
Month	Case date	No patients with drug resistance in NTSS	NPA	TRx	59	0.481
Month	Case date	All NTSS counts	NPA NTB	NTS Rx	59	0.476
Month	Case date	No patients with drug resistance in NTSS	NPA NTB	TRx	59	0.449

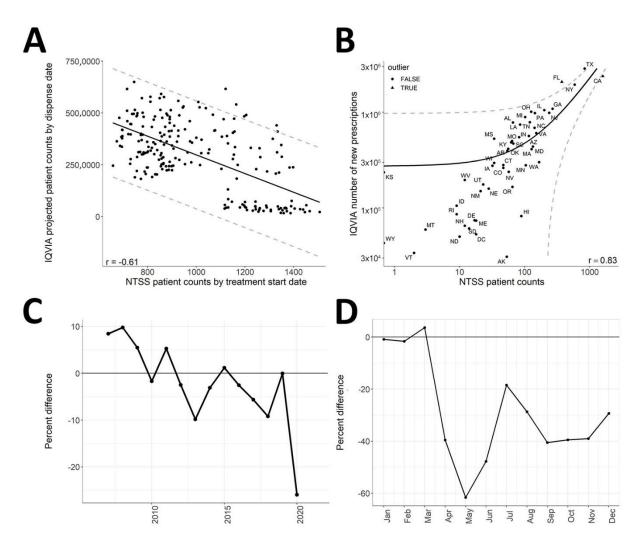
Timeframe	NTSS aggregation date	NTSS resistance inclusion	IQVIA database	IQVIA metric	No. timepoints compared	Pearson correlation coefficient
Month	Treatment start	All NTSS counts	NPA	EUNRx	23	0.445
World	date	7 III 141 CC CCUING	Extended Insights	LOTTIC	20	0.440
Month	Treatment start date	All NTSS counts	NPA	EUNRx	59	0.431
Month	Treatment start date	No patients with drug resistance in NTSS	NPA	EUNRx	59	0.430
Month	Treatment start date	No patients with drug resistance in NTSS	NPA Extended Insights	NRx	23	0.427
Month	Case date	All NTSS counts	NPA NTB	NRx	59	0.422
Month	Treatment start date	No patients with drug resistance in NTSS	NPA Extended Insights	EUNRx	23	0.407
Month	Treatment start	No patients with drug resistance in NTSS	NPA NTB	Switch Add Rx	59	0.407
Month	Treatment start date	All NTSS counts	NPA NTB	Switch Add Rx	59	0.407
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	Switch Add Rx	20	0.401
Quarter	Case date	All NTSS counts	NPA NTB	NTS Rx	20	0.399
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA	NRx	20	0.388
Month	Case date	All NTSS counts	NPA Extended Insights	EUNRx	23	0.382
Quarter	Treatment start date	All NTSS counts	NPA NTB	Switch Add Rx	20	0.380
Month	Case date	All NTSS counts	NPA	NRx	59	0.380
Month	Case date	All NTSS counts	NPA Extended Insights	NRx	23	0.377
Quarter	Case date	No patients with drug resistance in NTSS	NPA NTB	NTS Rx	20	0.371
Month	Treatment start date	No patients with drug resistance in NTSS	NPA	EUTRx	59	0.370
Month	Case date	No patients with drug resistance in NTSS	NPA	EUNRx	59	0.369
Month	Case date	No patients with drug resistance in NTSS	NPA Extended Insights	EUNRx	23	0.360
Month	Case date	No patients with drug resistance in NTSS	NPA NTB	Switch Add Rx	59	0.359
Month	Treatment start date	All NTSS counts	NPA	EUTRx	59	0.356
Quarter	Treatment start date	All NTSS counts	NPA	NRx	20	0.356
Quarter Quarter	Case date Treatment start date	All NTSS counts No patients with drug resistance in NTSS	NPA NTB NPA NTB	NBRx NRx	20 20	0.342 0.340
Month	Treatment start date	All NTSS counts	NPA Extended	TRx	23	0.336
Quarter	Treatment start date	All NTSS counts	Insights NPA NTB	NRx	20	0.331
Month	Case date	No patients with drug resistance in NTSS	NPA	EUTRx	59	0.331
Quarter	Case date	No patients with drug resistance in NTSS	NPA NTB	NBRx	20	0.329
Month	Case date	All NTSS counts	NPA NTB	TRx	59	0.326
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA	TRx	20	0.325
Month	Case date	No patients with drug resistance in NTSS	NPA Extended Insights	NRx	23	0.318
Month Month	Case date Case date	All NTSS counts All NTSS counts	NPA NPA NTB	EUNRx Switch Add Rx	59 59	0.305 0.299

Month	Timeframe	NTSS aggregation date	NTSS resistance inclusion	IQVIA database	IQVIA metric	No. timepoints compared	Pearson correlation coefficient
Month							
International Company							
Month			,		20		0.202
Month Case date Ropatients with drug resistance in NTSS NPA RRx 59 0.282				Insights			
Insights NPA	Month	Treatment start	No patients with drug	NPA	TRx	23	0.291
Month Case date No patients with drug resistance in NTSS NPA RRx 59 0.282		date	resistance in NTSS				
Treatment start All NTSS counts All NTSS c							
Month	Month	Case date		NPA	RRx	59	0.282
Case date	Month	Tractment start		NDA	DDv	50	0.201
Duarter Treatment start date No patients with drug resistance in NTSS NPA EUTRX 23 0.267	VIOTILIT			NEA	IXIX	39	0.201
Month Treatment start No patients with drug resistance in NTSS NPA EUTRX 23 0.267	Quarter			NPA	TRx	20	0.281
Duarter							
Duarter Treatment start date resistance in NTSS NPA NTB TRX 20 0.252	Month	Treatment start	No patients with drug	NPA	EUTRx	23	0.267
Duarter Treatment start All NTSS counts NPA TRX 20 0.252		date	resistance in NTSS	Extended			
date							
Month	Quarter			NPA NTB	TRx	20	0.252
Cauarter Treatment start No patients with drug resistance in NTSS NPA NTB TRX 20 0.236	\			NDA	DD.	50	0.044
Duarter Treatment start All NTSS counts All All NTSS cou	viontn		All N155 counts	NPA	KKX	59	0.244
Cauarter Treatment start All NTSS counts NPA NTB TRX 20 0.236	Juarter		No nationts with drug	ΝΡΔ	FLINRy	20	0.236
Quarter	Quarter			INI A	LONIX	20	0.200
Cauter	Quarter			NPA NTB	TRx	20	0.236
Month							
Month Case date No patients with drug resistance in NTSS Extended linsights	Quarter	Treatment start	All NTSS counts	NPA	EUNRx	20	0.231
Part		date					
Duarter Case date No patients with drug resistance in NTSS NPA NTB Switch Add Rx 20 0.212	Month	Case date			EUTRx	23	0.219
Quarter Case date			resistance in NTSS				
Month Case date All NTSS counts NPA TRX TR	Quarter	Coop data	No notionto with drug		Switch Add Dv	20	0.212
Month Case date All NTSS counts NPA TRx 23 0.212	Quarter	Case date		NEANID	SWILCH AUU KX	20	0.212
Cauarter	Month	Case date		NPA	TRx	23	0.212
Quarter Case date							
Month Case date All NTSS counts NPA EUTRx 59 0.200				Insights			
Quarter Case date All NTSS counts NPA NTB NRx 20 0.191	Quarter	Case date	All NTSS counts	NPA NTB	Switch Add Rx	20	0.209
Month	Month						
Valuation Case date All NTSS counts Case date All NTSS counts NPA EUTRX 23 0.185							
Month Case date All NTSS counts NPA EUTRX 23 0.185 Quarter Case date No patients with drug resistance in NTSS counts NPA NRX 20 0.173 Quarter Treatment start No patients with drug nesistance in NTSS NPA NRX 20 0.172 date resistance in NTSS NPA NRX 20 0.172 date resistance in NTSS NPA NRX 20 0.172 date resistance in NTSS NPA NPA NRX 20 0.172 date resistance in NTSS NPA	Vionth	Case date			IRX	23	0.185
Month Case date All NTSS counts NPA EUTRx 23 0.185			resistance in N155				
Quarter Case date No patients with drug resistance in NTSS Quarter Treatment start No patients with drug NPA NRX 20 0.181 Quarter Treatment start No patients with drug NPA RRX 20 0.172	Month	Case date	All NTSS counts		FLITRy	23	0 185
Quarter Case date No patients with drug resistance in NTSS Quarter Case date All NTSS counts NPA NRX 20 0.173 Quarter Treatment start No patients with drug NPA RRX 20 0.172 date resistance in NTSS Quarter Treatment start No patients with drug NPA RRX 20 0.172 date resistance in NTSS Quarter Treatment start No patients with drug NPA EUTRX 20 0.160 date resistance in NTSS Quarter Case date No patients with drug NPA TRX 20 0.150 resistance in NTSS Whonth Case date No patients with drug NPA EURRX 59 0.136 resistance in NTSS Quarter Case date No patients with drug NPA NTB NRX 20 0.135 Quarter Treatment start All NTSS counts NPA EUTRX 20 0.135 Quarter Treatment start All NTSS counts NPA EUTRX 20 0.135 Quarter Treatment start All NTSS counts NPA EURRX 59 0.121 date resistance in NTSS Quarter Treatment start All NTSS counts NPA EURRX 59 0.121 date resistance in NTSS Quarter Treatment start All NTSS counts NPA EURRX 59 0.121 date Resistance in NTSS Quarter Treatment start All NTSS counts NPA EURRX 59 0.121 date Resistance in NTSS Quarter Treatment start All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088	VIOTILIT	ouse date	7 III 11 TOO COUNTS		LOTTO	20	0.100
Quarter Case date No patients with drug resistance in NTSS PA NRX 20 0.173 Quarter Treatment start No patients with drug resistance in NTSS PA NRX 20 0.173 Quarter Treatment start No patients with drug NPA RRX 20 0.172 date resistance in NTSS PA NPA RRX 20 0.172 date resistance in NTSS PA RRX 20 0.160 Quarter Treatment start No patients with drug NPA EUTRX 20 0.160 Quarter Case date No patients with drug NPA TRX 20 0.150 Quarter Case date No patients with drug NPA EURRX 59 0.136 Quarter Case date No patients with drug NPA EURRX 59 0.136 Quarter Case date No patients with drug resistance in NTSS PA NPA NTB NRX 20 0.135 Quarter Treatment start All NTSS counts NPA EUTRX 20 0.135 Quarter Treatment start All NTSS counts NPA EUTRX 20 0.135 Quarter Treatment start All NTSS counts NPA EURRX 59 0.121 date RAMINTSS counts NPA EURRX 59 0.121 date RAMINTSS counts NPA EURRX 20 0.112 Quarter Treatment start All NTSS counts NPA EURRX 20 0.112 date RAMINTSS counts NPA EURRX 20 0.112 Quarter Case date All NTSS counts NPA EURRX 20 0.097 Month Treatment start All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088							
Quarter Case date All NTSS counts NPA NRX 20 0.173 Quarter Treatment start date resistance in NTSS Quarter Treatment start No patients with drug NPA EUTRX 20 0.160 Quarter Case date No patients with drug NPA TRX 20 0.150 Quarter Case date No patients with drug NPA EURRX 59 0.136 Quarter Case date No patients with drug NPA EURRX 59 0.136 Quarter Case date No patients with drug NPA EURRX 59 0.136 Quarter Case date No patients with drug NPA NTB NRX 20 0.135 Quarter Case date No patients with drug NPA NTB NRX 20 0.135 Quarter Treatment start All NTSS counts NPA EUTRX 20 0.135 Quarter Treatment start All NTSS counts NPA EURRX 59 0.121 Quarter Treatment start All NTSS counts NPA EURRX 59 0.121 Quarter Treatment start All NTSS counts NPA EURRX 59 0.121 Quarter Treatment start All NTSS counts NPA RRX 20 0.112 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088	Quarter	Case date	No patients with drug		NRx	20	0.181
Quarter Treatment start date resistance in NTSS NPA RRX 20 0.172 NPA RRX 20 0.160 NPA RRX RRX RES RESISTANCE IN NTSS NPA EUTRX 20 0.160 NPA RRX RESISTANCE IN NTSS NPA RESISTANCE IN NTSS NPA RRX 20 0.150 NPA RRX RESISTANCE IN NTSS NPA EURRX S9 0.136 NPA RESISTANCE IN NTSS NPA RESISTANCE IN NTSS NPA RESISTANCE IN NTSS NPA RESISTANCE IN NTSS NPA EURRX S9 0.135 NPA RESISTANCE IN NTSS NPA EURRX 20 0.135 NPA EURRX RESISTANCE IN NTSS NPA EURRX 20 0.135 NPA EURRX RESISTANCE IN NTSS NPA EURRX S9 0.121 NPA NTB NPA EURRX S9 0.121 NPA NTB NPA EURRX S9 0.121 NPA NTB NPA EURRX S9 0.121 NPA NTS RESISTANCE IN NTSS NPA RRX 20 0.112 NPA NTS RRX RRX RRX RRX RRX RRX RRX RRX RRX RR							
Quarter Treatment start date resistance in NTSS Quarter Treatment start date resistance in NTSS Quarter Case date No patients with drug NPA TRX 20 0.150 resistance in NTSS Quarter Case date No patients with drug NPA EURRX 59 0.136 resistance in NTSS Quarter Case date No patients with drug NPA NTB NRX 20 0.135 resistance in NTSS Quarter Treatment start All NTSS counts NPA EUTRX 20 0.135 date Month Treatment start All NTSS counts NPA EURRX 59 0.121 date resistance in NTSS Quarter Treatment start All NTSS counts NPA EURRX 59 0.121 date Case date All NTSS counts NPA EURRX 20 0.112 date Resistance in NTSS NPA EURRX 20 0.112 date Case date All NTSS counts NPA EURRX 20 0.097 Month Treatment start All NTSS counts NPA EURRX 59 0.088 date Quarter Case date All NTSS counts NPA EURRX 59 0.088 date Quarter Case date All NTSS counts NPA EURRX 59 0.088	Quarter						
Quarter Treatment start date resistance in NTSS PA TRX PA TRX PA	Quarter			NPA	RRx	20	0.172
date resistance in NTSS Quarter Case date No patients with drug resistance in NTSS Month Case date No patients with drug resistance in NTSS Quarter Case date No patients with drug resistance in NTSS Quarter Case date No patients with drug resistance in NTSS Quarter Treatment start All NTSS counts NPA EUTRX 20 0.135 Quarter Treatment start No patients with drug NPA EUTRX 20 0.135 Quarter Treatment start No patients with drug NPA EURRX 59 0.121 Quarter Treatment start All NTSS counts NPA RRX 20 0.112 Quarter Treatment start All NTSS counts NPA RRX 20 0.112 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088	Quarter			NDA	ELITO	20	0.160
Quarter Case date No patients with drug resistance in NTSS Month Case date No patients with drug resistance in NTSS Quarter Case date No patients with drug resistance in NTSS Quarter Case date No patients with drug resistance in NTSS Quarter Treatment start date Month Treatment start No patients with drug resistance in NTSS Quarter Treatment start No patients with drug NPA EURRx 59 0.121 date resistance in NTSS Quarter Treatment start All NTSS counts NPA RRx 20 0.112 Quarter Treatment start All NTSS counts NPA EUNRx 20 0.097 Month Treatment start All NTSS counts NPA EURRx 59 0.088 Quarter Case date All NTSS counts NPA EURRx 59 0.088 Quarter Case date All NTSS counts NPA EURRx 59 0.088	Quarter			NPA	EUIKX	20	0.160
resistance in NTSS Month Case date No patients with drug resistance in NTSS Quarter Case date No patients with drug resistance in NTSS Quarter Treatment start date Month Treatment start No patients with drug date resistance in NTSS Quarter Treatment start No patients with drug NPA EURRX 20 0.135 Quarter Treatment start No patients with drug NPA EURRX 59 0.121 Guarter Treatment start All NTSS counts NPA RRX 20 0.112 Quarter Treatment start All NTSS counts NPA EUNRX 20 0.097 Month Treatment start All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Guarter Case date All NTSS counts NPA EURRX 59 0.088	Quarter			ΝΡΔ	TRv	20	0.150
Month Case date No patients with drug resistance in NTSS Quarter Case date No patients with drug resistance in NTSS Quarter Treatment start date Month Treatment start No patients with drug resistance in NTSS Quarter Treatment start No patients with drug NPA EURRX 20 0.135 Quarter Treatment start No patients with drug NPA EURRX 59 0.121 Quarter Treatment start All NTSS counts NPA RRX 20 0.112 Quarter Case date All NTSS counts NPA EUNRX 20 0.097 Month Treatment start All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088	Quartor	ouse date		141 74	TTO	20	0.100
resistance in NTSS Quarter Case date No patients with drug resistance in NTSS Quarter Treatment start date Month Treatment start No patients with drug NPA EURX 59 0.121 date resistance in NTSS Quarter Treatment start No patients with drug NPA EURRX 59 0.121 date resistance in NTSS Quarter Treatment start All NTSS counts NPA RRX 20 0.112 date Quarter Case date All NTSS counts NPA EUNRX 20 0.097 Month Treatment start All NTSS counts NPA EURRX 59 0.088 date Quarter Case date All NTSS counts NPA EURRX 59 0.088	Month	Case date		NPA	EURRx	59	0.136
resistance in NTSS Quarter Treatment start date Month Treatment start No patients with drug NPA EURRX 59 0.121 date resistance in NTSS Quarter Treatment start All NTSS counts NPA RRX 20 0.112 date Case date All NTSS counts NPA EUNRX 20 0.097 Month Treatment start All NTSS counts NPA EURRX 59 0.088 date Quarter Case date All NTSS counts NPA EURRX 59 0.088 date Quarter Case date All NTSS counts NPA TRX 20 0.085							
Quarter Treatment start date Month Treatment start date No patients with drug NPA EURRX 59 0.121 Quarter Treatment start date resistance in NTSS Quarter Treatment start date Quarter Case date All NTSS counts NPA EUNRX 20 0.097 Month Treatment start All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA EURRX 59 0.088 Quarter Case date All NTSS counts NPA TRX 20 0.085	Quarter	Case date	No patients with drug	NPA NTB	NRx	20	0.135
date Month Treatment start No patients with drug NPA EURRx 59 0.121 Quarter Treatment start All NTSS counts NPA RRx 20 0.112 Quarter Case date All NTSS counts NPA EUNRx 20 0.097 Month Treatment start All NTSS counts NPA EURRx 59 0.088 date Quarter Case date All NTSS counts NPA EURRx 59 0.088 date Quarter Case date All NTSS counts NPA TRX 20 0.085							
Month Treatment start date resistance in NTSS Quarter Treatment start date Quarter Case date All NTSS counts NPA EURRx 59 0.121 Quarter Case date All NTSS counts NPA EUNRx 20 0.097 Month Treatment start All NTSS counts NPA EURRx 59 0.088 date Quarter Case date All NTSS counts NPA EURRx 59 0.088 date Quarter Case date All NTSS counts NPA TRX 20 0.085	Quarter		All NTSS counts	NPA	EUTRx	20	0.135
date	Manth		No notionto with draw	NDA	ELIDD _V	50	0.101
Quarter Treatment start date All NTSS counts NPA RRx 20 0.112 Quarter Case date All NTSS counts NPA EUNRx 20 0.097 Month Treatment start date All NTSS counts NPA EURRx 59 0.088 Quarter Case date All NTSS counts NPA TRx 20 0.085	VIOTILII			NPA	EUKKX	59	0.121
date	Quarter			NΡΔ	RRy	20	ი 112
Quarter Case date All NTSS counts NPA EUNRx 20 0.097 Month Treatment start All NTSS counts NPA EURRx 59 0.088 date Quarter Case date All NTSS counts NPA TRx 20 0.085	~ uui 101		, 11100 counts		IIIA	20	J.112
Month Treatment start All NTSS counts NPA EURRx 59 0.088 date Quarter Case date All NTSS counts NPA TRx 20 0.085	Quarter		All NTSS counts	NPA	EUNRx	20	0.097
Quarter Case date All NTSS counts NPA TRx 20 0.085	Month						
Month Case date All NTSS counts NPA RRx 59 0.076							
	vionth	Case date	All NTSS counts	NPA	RRx	59	0.076

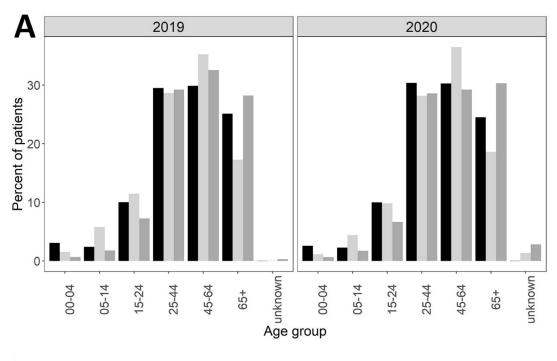
Timeframe	NTSS aggregation date	NTSS resistance inclusion	IQVIA database	IQVIA metric	No. timepoints compared	Pearson correlation coefficient
Quarter	Case date	No patients with drug	NPA	RRx	20	0.076
Quartor	Oase date	resistance in NTSS	INI A	TUV	20	0.070
Quarter	Case date	All NTSS counts	NPA NTB	TRx	20	0.070
Month	Treatment start	All NTSS counts	NPA NTB	Cont Rx	59	0.064
	date					
Month	Treatment start	No patients with drug	NPA NTB	Cont Rx	59	0.060
	date	resistance in NTSS				
Quarter	Case date	No patients with drug	NPA NTB	TRx	20	0.055
Ouerter	Treatment start	resistance in NTSS All NTSS counts	NPA	EUNRx	8	0.054
Quarter	date	All N133 Counts	Extended	EUNKX	0	0.054
	date		Insights			
Quarter	Case date	No patients with drug	NPA	EUNRx	20	0.040
		resistance in NTSS				
Month	Case date	No patients with drug	NPA NTB	Cont Rx	59	0.036
		resistance in NTSS				
Quarter	Treatment start	No patients with drug	_ NPA	EUNRx	8	0.032
	date	resistance in NTSS	Extended			
0	T	All NITCO	Insights	ND.	0	0.000
Quarter	Treatment start date	All NTSS counts	NPA Extended	NRx	8	0.028
	uale		Insights			
Quarter	Case date	All NTSS counts	NPA	EUNRx	8	0.022
Quartor	Oute date	71111100 coding	Extended	LOITIX	Ü	0.022
			Insights			
Quarter	Treatment start	No patients with drug	NPA	NRx	8	0.009
	date	resistance in NTSS	Extended			
			Insights			
Quarter	Case date	All NTSS counts	NPA	NRx	8	0.006
			Extended			
Quarter	Case date	No nationto with drug	Insights NPA	EUTRx	20	-0.001
Quarter	Case date	No patients with drug resistance in NTSS	NPA	EUIKX	20	-0.001
Quarter	Treatment start	No patients with drug	NPA	EURRx	20	-0.003
Quartor	date	resistance in NTSS	INI A	LOITIX	20	0.003
Quarter	Case date	All NTSS counts	NPA	EUTRx	20	-0.015
Month	Case date	All NTSS counts	NPA NTB	Cont Rx	59	-0.049
Month	Case date	All NTSS counts	NPA	EURRx	59	-0.059
Quarter	Treatment start	All NTSS counts	NPA	EURRx	20	-0.061
	date					
Quarter	Treatment start	All NTSS counts	NPA NTB	Cont Rx	20	-0.061
0	date	Na matianta mitta dum	NIDA NITO	Court Dec	20	0.000
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA NTB	Cont Rx	20	-0.062
Quarter	Case date	No patients with drug	NPA	EURRx	20	-0.075
Quartor	Oase date	resistance in NTSS	INI A	LOITIX	20	0.073
Quarter	Case date	All NTSS counts	NPA	RRx	20	-0.079
Quarter	Treatment start	All NTSS counts	NPA	EUTRx	8	-0.081
	date		Extended			
			Insights			
Month	Treatment start	All NTSS counts	NPA	RRx	23	-0.084
	date		Extended			
		N	Insights		00	0.005
Month	Treatment start	No patients with drug	NPA	RRx	23	-0.085
	date	resistance in NTSS	Extended			
Quarter	Treatment start	No patients with drug	Insights NPA	EUTRx	8	-0.090
Qual lei	date	resistance in NTSS	Extended	LUTIX	U	0.090
	uale	TOSISIANOS III IN 100	Insights			
Quarter	Case date	No patients with drug	NPA	EUNRx	8	-0.091
		resistance in NTSS	Extended		-	
			Insights			
Month	Treatment start	No patients with drug	NPA	EURRx	23	-0.103
	date	resistance in NTSS	Extended			
	date	1001010110011111100	Insights			

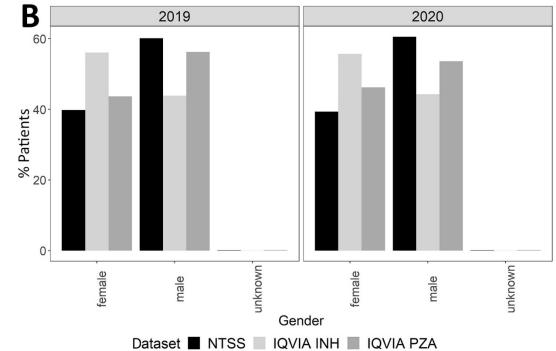
Timeframe	NTSS aggregation date	NTSS resistance inclusion	IQVIA database	IQVIA metric	No. timepoints compared	Pearson correlation coefficient
Month	Treatment start	All NTSS counts	NPA	EURRx	23	-0.113
MOHUI	date	All N133 Counts	Extended Insights	EURKX	23	-0.113
Quarter	Treatment start	All NTSS counts	NPA	TRx	8	-0.120
Quarter	date	All N100 counts	Extended	TIW.	O	0.120
0	0	All NITCO	Insights	EUTD	0	0.400
Quarter	Case date	All NTSS counts	NPA Extended	EUTRx	8	-0.129
Month	Case date	No patients with drug	Insights NPA	EURRx	23	-0.129
WOTH	Case date	resistance in NTSS	Extended	LONIX	23	-0.129
Month	Coop data	No nationto with drug	Insights NPA	RRx	23	-0.130
Month	Case date	No patients with drug resistance in NTSS	Extended	NNX	23	-0.130
		resistance in N100	Insights			
Quarter	Treatment start	No patients with drug	NPA	TRx	8	-0.133
Quartor	date	resistance in NTSS	Extended	1100	Ü	0.100
			Insights			
Quarter	Case date	All NTSS counts	NPA	TRx	8	-0.144
			Extended			
			Insights			
Quarter	Case date	No patients with drug	NPA	NRx	8	-0.147
		resistance in NTSS	Extended			
	0 1.	AUAITOO	Insights	55	00	0.470
Month	Case date	All NTSS counts	NPA	RRx	23	-0.170
			Extended			
Quarter	Case date	All NTSS counts	Insights NPA NTB	Cont Rx	20	-0.183
Quarter	Case date	No patients with drug	NPA NTB	Cont Rx	20	-0.196
Quartor	ouse date	resistance in NTSS	I I I I I I I I I I I I I I I I I I I	Control	20	0.100
Quarter	Case date	No patients with drug resistance in NTSS	NPA Extended Insights	EUTRx	8	-0.204
Quarter	Case date	All NTSS counts	NPA	EURRx	20	-0.213
Month	Case date	All NTSS counts	NPA	EURRx	23	-0.244
			Extended			
Quarter	Case date	No notionto with drug	Insights NPA	TRx	8	-0.281
Quarter	Case date	No patients with drug resistance in NTSS	Extended	ITX	0	-0.261
Quarter	Treatment start	No patients with drug	Insights NPA	EURRx	8	-0.304
Quarter	date	resistance in NTSS	Extended	LOIVIX	U	0.304
	date	resistance in 14100	Insights			
Quarter	Treatment start	All NTSS counts	NPA	EURRx	8	-0.318
	date		Extended			
			Insights			
Quarter	Case date	No patients with drug	NPA	EURRx	8	-0.387
		resistance in NTSS	Extended			
			Insights			
Quarter	Case date	All NTSS counts	_ NPA	EURRx	8	-0.388
			Extended			
Ouerter	Transferant atout	No notionto with drug	Insights	DDv	0	0.200
Quarter	Treatment start date	No patients with drug resistance in NTSS	NPA Extended	RRx	8	-0.388
	uale	resistance in N133	Insights			
Quarter	Treatment start	All NTSS counts	NPA	RRx	8	-0.389
	date		Extended		ŭ	2.000
			Insights			
Quarter	Case date	All NTSS counts	NPA	RRx	8	-0.413
			Extended			
			Insights			
Quarter	Case date	No patients with drug	_ NPA	RRx	8	-0.505
		resistance in NTSS	Extended			
			Insights			

^{*}IQVIA database and metrics are described in Appendix Tables 1 and 2. NTSS, National Tuberculosis Surveillance System.

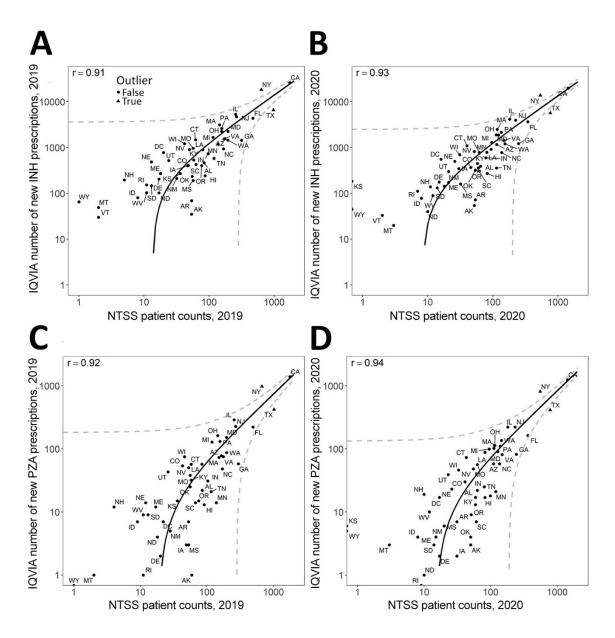


Appendix Figure 1. IQVIA azithromycin projected patient counts compared to NTSS data and changes over time. A) Horizontal axis of each plot is all NTSS patient counts aggregated by treatment start date month, while the vertical axis of each plot is the IQVIA azithromycin projected patient counts. Each point represents a month; all data at the national level during 2006–2019 is shown. B) Each point represents a state indicated by its 2-letter abbreviation. Triangles indicate outliers, defined as states with a standardized residual >3. Both axes are on a log scale. In panels A and B, the Pearson correlation coefficient (r) is shown in the corner of each plot, the solid black line represents a linear model between the 2 databases, and dashed gray lines indicate the 95% prediction interval. C) Annual percentage change compared to the previous year in IQVIA azithromycin projected patient counts. D) Monthly percent change comparing IQVIA azithromycin projected patient counts each month in 2020 to that month in 2019. NTSS, National Tuberculosis Surveillance System.

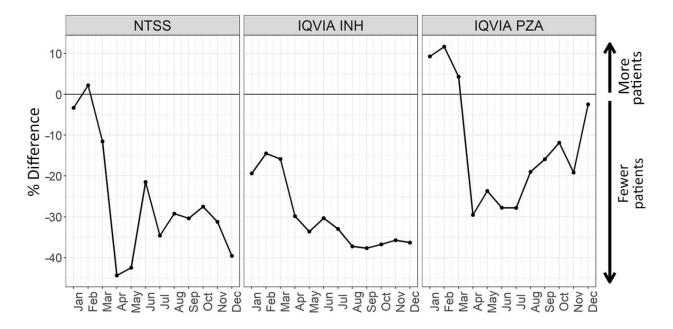




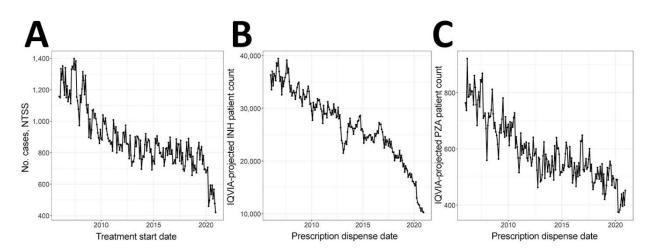
Appendix Figure 2. Comparison of patient demographics between the NTSS and IQVIA. A) Percentage of patients by age group for all NTSS cases (black), IQVIA INH projected patients (light gray), and IQVIA PZA projected patients (dark gray). Left plot shows the distribution in 2019 and right plot shows the distribution in 2020. B) Same as panel A except showing the percentage of patients by sex (NTSS) or gender (IQVIA). INH, isoniazid; NTSS, National Tuberculosis Surveillance System; PZA, pyrazinamide.



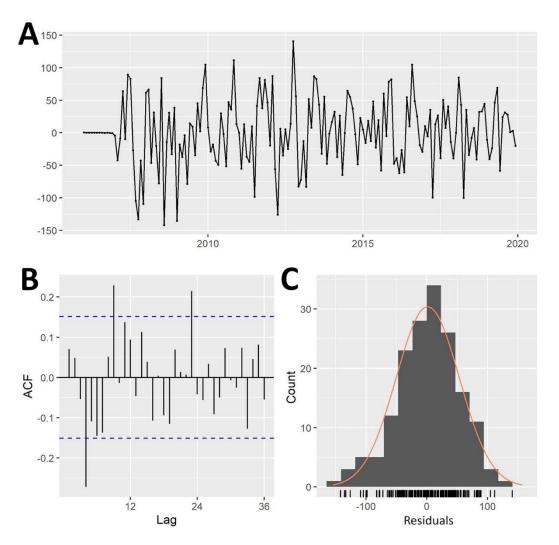
Appendix Figure 3. Comparison between National Tuberculosis Surveillance System (NTSS) and IQVIA data by state. The horizontal axis of each plot is the NTSS patient counts aggregated by treatment start date month and state, removing patients who had reported resistance to isoniazid (A–B) or pyrazinamide (C–D). On the vertical axis of each plot is the isoniazid (A–B) or pyrazinamide (C–D) IQVIA projected patient counts. Both axes are on a log scale. Panels A and C compare 2019 while panels B and D compare 2020 totals. IQVIA data are on different scales and so vertical axes are different. Each point represents a state indicated by its 2-letter abbreviation. Triangles indicate outliers, defined as states with a standardized residual >3. The Pearson correlation coefficient (r) is shown in the upper left-hand corner of each plot, solid black line represents a linear model between the 2 databases, and dashed gray lines indicate 95% prediction interval.



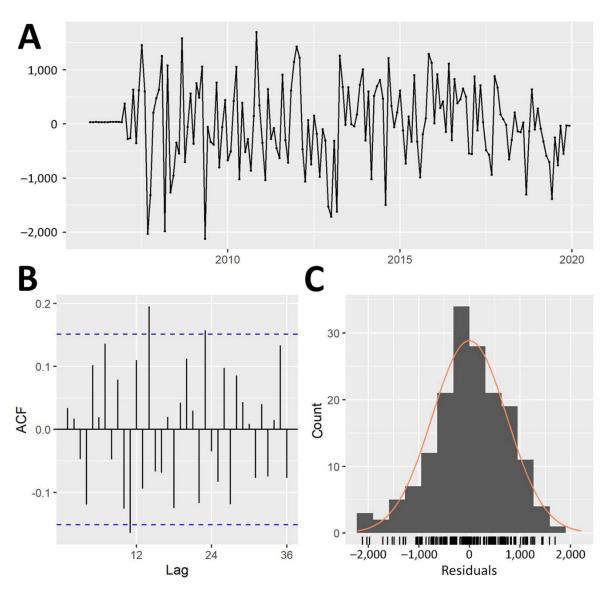
Appendix Figure 4. Percent difference in NTSS case counts and IQVIA projected patient counts between 2019 and 2020 by month. NTSS case counts were aggregated by treatment start date month while IQVIA data were aggregated by projected patient counts for INH or PZA. The horizontal black line represents no change in 2020 compared to 2019, above the line means more prescriptions in 2020, and below indicates less. INH, isoniazid; NTSS, National Tuberculosis Surveillance System; PZA, pyrazinamide.



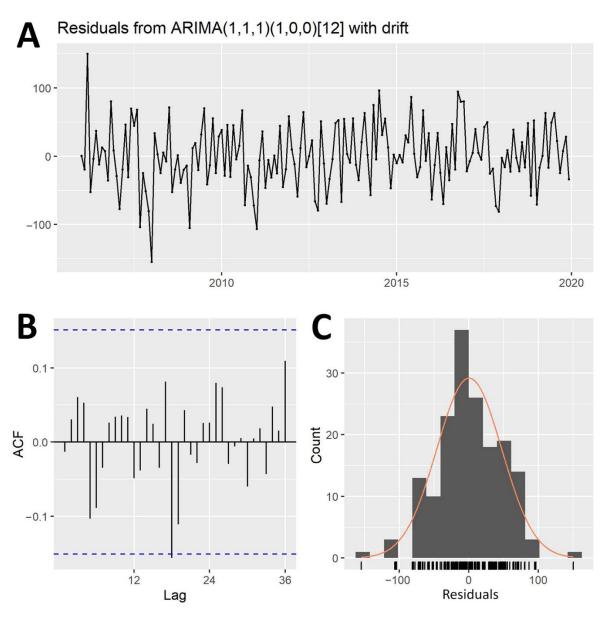
Appendix Figure 5. Database counts over time. Each point represents 1 month for A) NTSS cases aggregated by treatment start date, B) IQVIA INH projected patient counts by prescription dispense date, or C) IQVIA PZA projected patient counts by prescription dispense date. INH, isoniazid; NTSS, National Tuberculosis Surveillance System; PZA, pyrazinamide.



Appendix Figure 6. Residuals for the fitted National Tuberculosis Surveillance System seasonal ARIMA model. The specific model fitted is indicated in the title by ARIMA (p,d,q)(P,D,Q)[s], where (p,d,q) represents the non-seasonal part and (P,D,Q)[s] the seasonal part of the model (2). The number of autoregressive terms in each part are denoted by p and P, the degree of differencing by d and D, and the order of the moving averages by q and Q. The seasonal lag is denoted by s. In this instance, p = 2, d = D = Q = 1, q = P = 0, and s = 12 (indicating 12-month lags). ACF, autocorrelation function (represents the coefficients of correlation between a time series and lags of itself). ARIMA, autoregressive integrated moving average.



Appendix Figure 7. Residuals for the fitted IQVIA isoniazid SARIMA model. The specific model fitted is indicated in the title by ARIMA (p,d,q)(P,D,Q)[s], where (p,d,q) represents the non-seasonal part and (P,D,Q)[s] the seasonal part of the model (2). The number of autoregressive terms in each part are denoted by p and P, the degree of differencing by d and D, and the order of the moving averages by q and Q. The seasonal lag is denoted by s. In this instance, p = 4, d = q = P = 0, D = Q = 1, and s = 12 (indicating 12-month lags). ACF, autocorrelation function (represents the coefficients of correlation between a time series and lags of itself). ARIMA, autoregressive integrated moving average.



Appendix Figure 8. Residuals for the fitted IQVIA pyrazinamide SARIMA model. The specific model fitted is indicated in the title by ARIMA (p,d,q)(P,D,Q)[s], where (p,d,q) represents the non-seasonal part and (P,D,Q)[s] the seasonal part of the model (2). The number of autoregressive terms in each part are denoted by p and P, the degree of differencing by d and D, and the order of the moving averages by q and Q. The seasonal lag is denoted by s. In this instance, p = d = q = P = 1, D = Q = 0, and s = 12 (indicating 12-month lags). ACF, autocorrelation function (represents the coefficients of correlation between a time series and lags of itself). ARIMA, autoregressive integrated moving average.