



# Scoping Review of Effective Methods of Measuring Medication Adherence When Using Administrative Claims

Nikhil Bhatia, PharmD Candidate<sup>1</sup>, Paula Eichenbrenner, MBA, CAE<sup>2</sup>, John Spain, PharmD<sup>3</sup>, Annesha White, PharmD, MS, PhD<sup>4</sup>, Julia Marsh B.S<sup>1</sup>, Catherine Lockhart PharmD, PhD<sup>1</sup>

Biologics and Biosimilars Intelligence Consortium (BBCIC)<sup>1</sup>, AMCP Foundation<sup>2</sup>, Pfizer, Inc.<sup>3</sup>, University of North Texas College of Pharmacy<sup>4</sup>

## Background

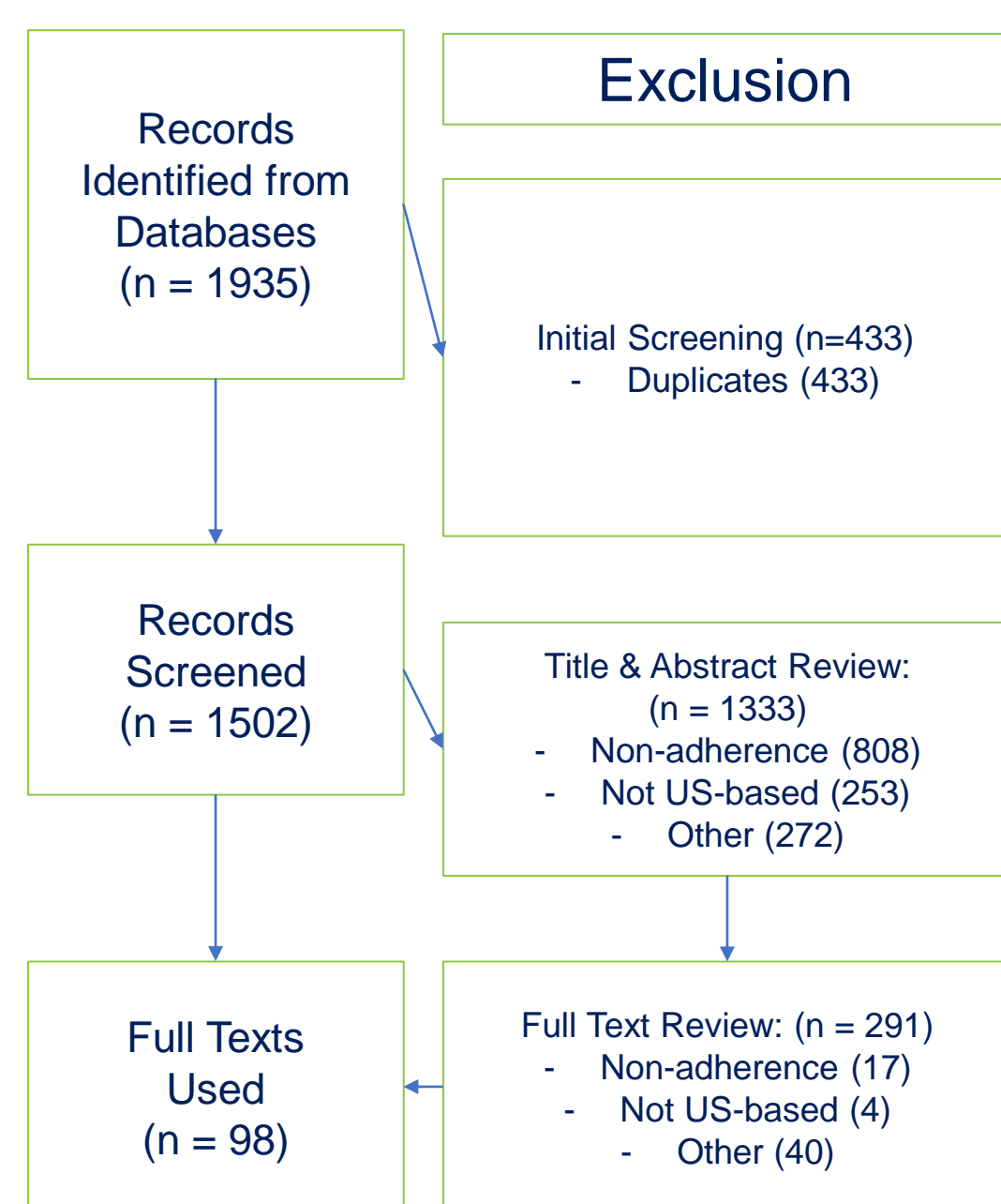
- Adults with chronic conditions are not adherent to 30-50% of medications<sup>1</sup>
- Higher rates of nonadherence leads to higher morbidity/healthcare costs<sup>2</sup>
- Difficult to obtain accurate information regarding medication adherence
- Claims information does provide advantages and disadvantages<sup>3</sup>  
Advantages include access to large study populations, analytical potential, and bias reduction, while disadvantages include limited clinical information and gaps in data
- Gaps in current literature in measuring medication adherence
- A scoping review is necessary to consolidate effective methods

## Objective

- The objective was to conduct a scoping review of US-based, observational, prospective/retrospective studies utilizing administrative claims data to evaluate adherence and/or adherence patterns

## Methods

- Utilized three databases (PubMed, Embase, Web of Science) to conduct comprehensive search
- Search, screening, review, and data extraction completed by primary investigator. Additional reviewers assured quality insurance and guidance
- Inclusion Criteria: observational, prospective/retrospective, USA-based, adult populations (>18 yrs.), utilize administrative claims in relation to medication adherence



## Results

Table includes six selected studies chosen to represent a variety of adherence measures present in the final selection of studies\*

Author	Title	Adherence Measurement	Disease State	Strengths	Limitations
Galozy, A, et al., 2020	Pitfalls of medication adherence approximation through EHR and pharmacy records: Definitions, data and computation	MPR (medication possession ratio that represents adherence over fixed time). MPR = total medication supply/365 or 730 days.	Asthma, diabetes, hypertension, hyperlipidemia	Multiple Adherence Measures	Uncontrolled factors such as underlying patient differences, Potential biases, Unstandardized treatment plans, Only one plan used, Unaligned disease states and condition management.
Rasu, R., et al., 2021	Accurate Medication Adherence Measurement Using Administrative Data for Frequently Hospitalized Patients	PDC (Proportion of Days Covered, calculated as number of days with medication with same drug class divided by 183) (PDC > 80% = adherent)	Various Chronic Cond within 16 drugs classes	Large/Diverse Sample Size, Various Disease States	Adherence data from claims --> pt. behavior itself unknown; Not applicable to Medicare/aid population; potential unknown confounding variables; polypharmacy impacts on adherence
Tkacz, J., et al., 2015	Novel Adherence Measures for Infusible Therapeutic Agents Indicated for Rheumatoid Arthritis	Time from initiation to discontinuation using fill records. Calculated by dispense date and days of supply. 60 or more days of non-possession equals non-adherence	Post Acute Myocardial Infarction	Subpopulation identification; cohort analysis	Claims -> Limited clinical info, Lack of qualitative info
Liu, J., et al. 2018	Medication persistence and risk of fracture among female Medicare beneficiaries diagnosed with osteoporosis	Discontinuation = more than 60 days of not filling prescription	Type 1/2 DM	Furthered previous literature and evidence of Out-of-Pocket cost caps	Claims limitations, Average Insulin costs can mask OOP variation
Mody, R, et al., 2018	Real-world effectiveness, adherence and persistence among patients with type 2 diabetes mellitus initiating dulaglutide treatment	CSA (continuous, single-interval availability) (calc. as days supply divided by days of interval from dispensation dates)	Coronary Heart Disease	Use of CSA, initial literature in this area	Claims limitations
Taitel, M, et al., 2012	Medication days' supply, adherence, wastage, and cost among chronic patients in Medicaid	CG20 (cumulative time with infusion gap greater than or equal to 20% beyond expected interval) (calc. as sum of all infusion gap days beyond recommended maintenance treatment interval), etc.	Rheumatoid Arthritis	Use of several prospective adherence measures	Claims limitations, New adherence measures should be more developed

\*Please scan QR code (upper-left) for full results

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## Discussion

- Most studies utilized either Proportion of Days Covered (PDC) or Medication Possession Ratio (MPR)
  - PDC = (# of days covered / # of days in observation period)
  - MPR = (# of days supplied / # of days in observation period)
- Other methods include Time until Discontinuation, CSA, etc.
- Disadvantages to these approaches → Gaps in Adherence Measurement
- Disadvantages include human error and overestimation of adherence due to fill dates

## Conclusion

- Strengths: Use of observational, prospective/retrospective studies ensure RWE → practical application, evaluates a very large selection of studies
- Limitations: Variability in disease states → potential bias, difficult to ensure studies are consistently applicable to general population
- Upon completion of this initial review, MPR and PDC were the most common methods of measuring adherence when conducting claims-based adherence studies
- Future studies are necessary to explore unique methods addressed in studies evaluate PDC/MPR capabilities in special populations

## References

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