tence compared to those who started on a generic and switched to a brand.

CONCLUSIONS: Initiating or switching to generic therapy is associated with significa-
cently higher compliance and greater therapy persistence compared to initiating
or switching to brand medications.

PIH30 ASSESSING INCONSISTENCIES IN ADHERENCE RESEARCH: A SYSTEMATIC REVIEW

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OBJECTIVES: Non-adherence to prescription medication is a serious problem. Accu-
rate assessment of adherence is important for improving patients’ health out-
come and informing decisions made by providers and payers. This study exam-
ined how adherence was defined, measured, and reported in the scientific
literature. METHODS: A systematic review of studies reporting on adherence to
prescription medication for chronic diseases was conducted. Embase® and MED-
LINE® were searched. All relevant studies were identified through 25 electronic
papers were assessed for inclusion. Mean overall adherence was estimated using a
random effects model. RESULTS: The review included 266 studies that met pre-
defined inclusion criteria. The definition of non-adherence varied across studies;
73.6% of all studies defined non-adherence as missed/ skipped doses only, while
24.3% defined it as discontinuation of therapy only, and 2.1% defined it as either.
Adherence was recorded using different tools including claims data (55.2%), patient
self-reports (30.5%), pill counts (12.8%), and laboratory tests (1.5%). Furthermore,
many studies used more than one measure. The most common metrics were odds
ratios (65.6%), regression coefficients (13.0%), hazard ratios (11.2%), and relative
risks (5.4%). The meta-analysis showed that the mean overall adherence was high-
er than the benchmarks established in the literature; this was particularly evident
in chronic conditions such as diabetes, cardiovascular disease, and HIV.

PIH31 THE IMPACT OF REDUCING DOSING FREQUENCY OF ORAL THERAPIES ON
ADHERENCE, COMPLIANCE, AND COST FOR ACUTE AND CHRONIC ILLNESSES:
A META-ANALYSIS

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OBJECTIVES: To assess the impact of reducing the frequency of oral therapies from
multiple-dosaging schedules to a once-daily (qd) dosing schedule on adherence, com-
pliance, and the associated economic impact. METHODS: All relevant studies were
searched using electronic databases (MEDLINE® and Embase®). The studies as-
sessing adherence with od, twice-daily (bid), three- to four times daily (qid) and,
times daily (qd) oral medications were analyzed. Results of the regression equa-
tions for variables among patients with acute and chronic diseases, were included. There was no
restriction on the treatments assessed other than that they were delivered orally.
Comparisons of effect estimates across studies were pooled and analyzed using a
DerSimonian Laird random-effects model. RESULTS: Forty-three studies met the in-
clusion criteria of the review, of which 33 studies compared once-daily dosing
schedule with multiple-dosaging schedules. Data on adherence and compliance were
available for studies in depression, HIV, hypertension, and respiratory tract infec-
tions (RTIs). Among these conditions, the overall results indicated that od schedule
was associated with higher adherence rates [Odds Ratio (OR): 2.34; 95% Confidence
Interval (CI): 1.31, 4.17; p = 0.004 for od versus bid/tid dosing] and compliance rates
(OR: 5.76; 95% CI: 1.89, 17.57; p = 0.01 for od versus bid dosing) compared with
multiple-dosing schedules. From a health economic perspective, it was observed
that higher adherence rates with od schedule (relative to multiple-dosing sched-
ules) prescribed in cardiovascular disorders, renal transplant, pain, RTIs, and ul-
cerative colitis was associated with lower costs of healthcare utilization. For ex-
ample, treatment costs in renal transplant patients demonstrated total per-
patient cost savings of $8941 over a 5-year time horizon with od regimen compared
with bid regimen. CONCLUSIONS: The present evidence base suggests that reduc-
ing the dose frequency from multiple dosing to once-daily dosing schedule could impro-
ve patients’ adherence and compliance among patients with acute and chronic
illnesses. Improving adherence was associated with further decreases in health care
costs.

PIH32 DEMOGRAPHIC AND HEALTH CHARACTERISTICS ASSOCIATED WITH
INTENTIONAL AND UNINTENTIONAL NON-ADHERENCE AMONG COSTLY
CHRONIC CONDITIONS IN THE UNITED STATES

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OBJECTIVES: Non-adherence to treatment predicts poorer health status. Patient
characteristics underlying intentional (INA) and unintentional (UNA) non-adher-
ence were analyzed among eleven costly chronic conditions. METHODS: Data from
U.S. 2011 National Health and Wellness Survey included 30,981 (of 75,000) respon-
dents reporting prescriptions for: asthma, pain, congestive heart failure, COPD,
diabetes, hypertension, depression, bipolar disorder, peripheral vascular disease,
transient ischemic attack, and stroke. Morisky Medication Adherence Scale items
were summed to create INA (“stop taking medicine when feeling better”) and
“... when feeling worse”) and UNA (“forget to take medicine” and “careless about
taking medicine”) scores ranging from 0 (adherence) to 2 (high non-adherence).
Across conditions, two logistic regressions predicted INA and UNA (1 vs. 0) from
gender, age, marital status, college education, income, race/ethnicity, exercise ≥12
times monthly, alcohol consumption ≥2 times weekly, cigarette smoking, employ-
ment, health insurance, BMI category, and adjusted Charlson Comorbidity Index
CCI score. RESULTS: Adjusting for covariates, significant predictors of INA and
UNA (odds ratios in parentheses for INA and UNA, respectively) were: female
gender (1.32/1.09), younger age (1.04/1.02), education (non-significant [1.5/1.13],
employment (1.9/1.13), uninsured status (1.24/1.05), income (<$30k vs. <$50k
vs. $75k: 1/1.45/1.11), Hispanic (1.50/1.20), African American (1.47/1.15), race
 ethnicity (White, non-white) (1.91/1.39), alcohol consumption (1/1.21), smoking
(1.25/1.00), and overweight (1.00/1.00). CONCLUSIONS: Non-adherence rates were
higher among females, those with lower education and income, the uninsured, and
those with higher race/ethnicity, exercise, and recent alcohol consumption.

PIH33 IMPACT OF DOSING FREQUENCY OF ORAL TREATMENTS ON ADHERENCE
AND PERSONAL COSTS

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OBJECTIVES: Compliance or adherence to regimens and persistence over time are
critical concerns among doctors. The impact of oral once-daily (OD) or twice-
daily (BID) dosing regimen on adherence and persistence is unclear, and may po-
tentially affect clinical and economic outcomes. This review aims to identify stud-
ies that identified the impact of OD vs. BID dose regimens of oral treatments on ad-
herence and persistence in the general population and those that require specific medica-
tion use. METHODS: Relevant articles were identified through a systematic litera-
ture review from PubMed (2000-2011) using the terms adherence, oral, administra-
tion and dosage, QD, BID, once daily, twice daily, and treatment. Another search
explored the secondary and tertiary references of relevant studies identified through
the bibliographies of articles found in the primary search. RESULTS: Search ar-
chives (N = 16) that met the search criteria comprised the following disease
areas: HIV/AIDS (10 articles), diabetes, ulcerative colitis (2), depression, hyperpen-
sion and chronic heart failure. 65% (10/16) of the studies observed improvement on
adherence with the oral QD treatment in comparison to the BID regimen. Of those,
6% were for HIV drugs, 1% for hypertension, 1% for ulcerative colitis, 1% for diabetes
and 1% for depression. Articles evaluating drugs for the treatment of ulcerative colitis,
HIV (4) and chronic heart failure found no impact on adherence. Persistence was
measured in 25% (4/16) of the studies, identified the following therapeutic areas:
depression, diabetes and HIV. 50% (2/4) found significantly greater persistence
among patients in the QD regimen versus BID regimens. Studies on HIV medica-
tions did not find any impact on persistence. CONCLUSIONS: The majority of stud-
ies reported better adherence with QD versus BID treatments for long-term drug
treatments observed improvement of adherence of QD versus BID treatment. The
impact of oral drug dosing frequency on persistence remains unclear and can vary
by therapeutic areas.

PIH34 IMPACT OF MEDICARE PART D COVERAGE GAP ON BENEFICIARIES’ ADHERENCE
TO PRESCRIPTION MEDICATIONS

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OBJECTIVES: It is important to study the extent to which Medicare Part D’s unique
benefit structure (with a gap in the middle) affects seniors’ adherence to prescrip-
tion medications. Therefore, this study had following objectives: 1) To identify
characteristics of beneficiaries reaching and therefore not reaching the coverage gap,
and 2) To study the impact of a complete gap in coverage on beneficiaries’ adherence
to prescription medications. METHODS: This was a retrospective quasi-experimental
analysis with matched control group using a nationally representative sample of
Part D enrollees of stand-alone prescription drug plans (PDPs) from 2008 Centers
for Medicare and Medicaid (CMS) Part D and summary datasets. In addition to studying
differences in characteristics of those who did and did not reach the coverage gap
in 2008, adherence to oral medications taken from one or more of the seven pre-
defined therapeutic classes was measured using Medication Possession Ratio
(MPR). Appropriate statistical tests for significance were performed using SAS 9.1.
RESULTS: A quarter of our sample (24.4%) reached the coverage gap in 2008,
mainly the second of September: of these, 12.0% (p < 0.05) of the total sample 39 reached
the catastrophic coverage phase. Although the two groups had similar demo-
graphic attributes, beneficiaries reaching the coverage gap had higher prescription
medication use compared to those not reaching the coverage gap (11.25/4.63 vs.
7.39/3.75). Beneficiaries reaching the gap experienced significantly higher reduc-
ctions in adherence (3.00% more for beta-blockers to 9.00% more for oral anti-dia-
betic agents, p-value < 0.0001), compared to those not reaching the gap. During the