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Cardiovascular Events: Prevention and Management

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CARDIOVASCULAR EVENTS: PREVENTION AND MANAGEMENT

by

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Dissertation

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DEDICATION

This dissertation is dedicated to my wife Jacquelyn. I am thankful for God's gift of her partnership, and never would have been able to complete this without her loving support.

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I want to thank Dr. Susan C Weller for shepherding me through this process and for always pushing me to my best. I would like to thank the committee for participating and for supporting me in my efforts. I would like to thank Julie Trumble, our research librarian, for performing no less than two dozen literature searches for me over the years spent on these projects. Finally, I would like to thank my friends, family, and God for the opportunity to complete this dissertation. It would never have been possible without my wife Jacquelyn.

CARDIOVASCULAR EVENTS: PREVENTION AND MANAGEMENT

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Cardiovascular disease is a leading source of morbidity and mortality in the United States. Statins, or HMG-CoA Reductase Inhibitors, are efficacious in reducing major arterial vascular events and also may decrease risk of venous vascular events (venous thromboembolism) in women taking hormone therapy (HT).[1–3] However, these drugs have little effect on heart failure outcomes, an important source of morbidity and mortality in the United States. This dissertation will have two projects concerning statin effectiveness and adverse events. The first project will assess the risk of statin-associated muscle symptoms (SAMS) in large RCTs utilizing a network meta-analysis. The second, using a large administrative insurance claims database, will estimate whether the risk of VTE in post-menopausal women on hormone therapy is reduced with statin exposure. The third project is a community intervention to improve health outcomes of recently-discharged heart failure patients, regardless of statin use.

ABSTRACT

This dissertation was a compilation of three, distinct studies assessing effects of various exposures on ultimate cardiovascular outcomes. In Aim 1, we assessed the relative and absolute risk of statin-associated muscle symptoms (SAMS) by exposure to statins of varying intensity (none, moderate, or high) in RCTs with at least 1,000 enrolled patients with planned follow-up of at least 2 years (n=152,461 patients in 24 RCTs). Risk was significantly greater for high compared with moderate intensity statin therapy for any muscle problem (RR=1.04, 95% CI 1.00 to 1.07; I2=0%), myalgia (RR=1.04, 95% CI 1.00 to 1.08; I2=0%, number needed to harm (NNH)=173), attrition due to muscle problems (RR=1.37, 95% CI 1.09 to 1.73, I2=0%, NNH=218) and elevated CK (RR=4.69, 95% CI 2.50 to 8.80; I2=7%, NNH=527). Risk also was significantly higher for high intensity compared with placebo for any muscle problem (RR=1.05, 95% CI 1.01 to 1.09, I2=0%), myalgia (RR=1.13, 95% CI 1.05 to 1.23; I2=0%, NNH=182), attrition due to muscle problems (RR=1.55, 95% CI 1.15 to 2.08, I2=0%, NNH=187) and elevated CK (RR=5.37, 95% CI 2.48 to 11.61; I2=7%, NNH=589). Due to inconsistency of results across sensitivity analyses, estimates were inconclusive for rhabdomyolysis and CK. There were no significant differences in risk between moderate intensity therapy and placebo for all outcomes.

In Aim 2, we assessed odds of VTE in a case-control study of women, free of VTE disease at baseline, aged 50-65 who had at least one year of continuous enrollment in the Optum database. Women were assessed for most recent exposure to hormone therapy (HT) – estrogen, progestogen, none, or both – and

statin therapy (moderate intensity, high intensity, or none) after adjusting for confounders. Cases were matched, 1:10, by age +/- 2 years and index date of event (+/- 1 month). There were 20,359 cases matched 1:10 to 203,590 controls in the selected sample. Exposure to HT was defined as any prescription in the 60 days prior to index date after review of the literature and homogeneity estimates across exposure groups. Using the same methods, exposure to statins was defined as three or more prescriptions for statins in the last 90 days prior to index date. Odds of VTE were significantly higher for women taking any HT (OR=1.51, 95% CI: 1.43, 1.60) but lower for those exposed to any statins (OR=0.88, 95% CI: 0.84, 0.93). The effect of statin exposure increased in magnitude for those exposed to high intensity statins (OR=0.82, 95% CI: 0.74, 0.90; referent is no exposure) versus moderate intensity statins (OR=0.90, 95% CI: 0.86, 0.95).

In Aim 3, we assessed feasibility and possible effectiveness of a novel disease management program implemented at the St. Vincent's Free Clinic in Galveston. Post-hospitalization heart failure (HF) disease management represents an important area of focus in preventing morbidity, mortality, and excess healthcare costs. Uninsured patients were offered enrollment in the disease management clinic during or immediately following hospitalization for a primary HF diagnosis at University of Texas Medical Branch at Galveston from January 2021 - December 2021. The program included twice-weekly visits with multiple healthcare professionals, including nurses, physicians, occupational therapists, social workers, pharmacists, and counselors. Patients were scheduled for 16 visits (2 months of follow-up) post-hospitalization before returning to usual care. Patients

who attended at least the introductory appointment and one follow-upappointment within 30 days of discharge were considered enrolled. Of 59 patients referred, 47 (80%) were enrolled. Just 4 patients (8.5%, 95% CI: 2.5%, 20.5%) were readmitted at 30 days, while 4 of 12 (33%, 95% CI: 13.6%, 61.2%) were readmitted at 30 days in those who did not enroll. Program participants were readmitted significantly less frequently than national readmission rate estimates (23%, p=0.02).

Thus, each Aim represents a novel exploration of various interventions and associations with important, clinical outcomes. The methods and findings in this dissertation are foundational to my future career as a physician-scientist.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

UTMB	University of Texas Medical Branch
GSBS	Graduate School of Biomedical Science
TDC	Thesis and Dissertation Coordinator

Chapter 1 Introduction and Proposal

SPECIFIC AIMS

Cardiovascular disease prevention is an important focus in efforts to decrease morbidity and mortality in the United States. Statin therapy is efficacious in reducing vascular events, such as myocardial infarction, stroke, and possibly venous thromboembolism (VTE). While efficacious, however, statin-associated muscle symptoms may reduce adherence to therapy. Observational studies suggest statins may decrease VTE in post-menopausal women on hormone therapy (HT). Other efforts are necessary to manage heart failure, for which statins are ineffective. The Congestive Heart Failure Comprehensive Care Clinic (CHFC3) at St. Vincent's Clinic (STVC) in Galveston offers medical, vitals surveillance, and free medications to uninsured patients. This dissertation first tests statin safety and adverse events, then, tests statin effectiveness in reducing VTE in postmenopausal women. Third, it evaluates the new HF disease management clinic at STVC and assesses its feasibility. Specifically, I will:

Aim 1: Estimate the risk for musculoskeletal events with statin therapy in randomized controlled trials (RCTs). Statin RCTs with at least 1,000 persons enrolled and 2 years of intended follow-up with data on "muscle problems", "myalgia", "attrition", CK >10x upper limit of normal, and rhabdomyolysis were included. A network meta-analysis compared high-intensity versus moderate intensity statin therapy versus placebo.

Aim 2: Estimate the risk of VTE in a nested case-control study of post-menopausal women by statin and/or HT exposures. This was performed using a large insurance claims database, examining women (50-65 years) without previous history of VTE in the prior 12 months and one or more years of available claims data. Odds of VTE were estimated in women exposed to statins, HT, both, or neither, while controlling for comorbidities (e.g., Elixhauser). *Primary hypothesis: odds of VTE with HT is moderated by statin exposure, such that odds of VTE are attenuated for women on both HT and statin therapy compared to HT alone*.

Aim 3: Obtain pilot data on the feasibility and estimate effect size of a HF disease management clinic for program participation and reductions in all-cause readmission rates at 30 days in uninsured patients. All uninsured patients discharged from a UTMB facility after receiving care for an HF-related cause and then attend St. Vincent's Clinic were eligible for inclusion (18+ years) for calendar year 2021. Participation was measured in terms of program uptake (percentage of patients who elect to participate over number referred) and the number of visits completed with the program within 60 days of discharge. The proportion of patients who were readmitted for any cause at 30 days were compared to population rates of readmission. The proportion of scheduled visits attended informs feasibility. *Primary hypothesis: Patients attending more visits in CHFC3 will be less likely to readmit at 30 days than those who attend fewer.*

BACKGROUND

Cardiovascular Disease in the United States

Cardiovascular disease is a leading cause of morbidity and mortality in the United States. The Center for Disease Control (CDC) estimates that over 18 million Americans suffer from coronary artery disease (CAD),[4] and noted wide disparity by income in 2010: over 70% of people with 130% or less income (relative to FPL) had coronary CAD, whereas 40% had CAD with 350% or more income relative to FPL. Almost 700,000 deaths from cardiovascular disease occur each year.[5]

Statins primarily work by inhibiting the enzyme HMG-CoA Reductase, increasing the recycling rate of low density lipoprotein (LDL) receptors that clear circulating LDL. They also, however, work to inhibit inflammatory signaling cascades in a variety of "off-target" mechanisms.[6] Statin therapy is therefore a key therapy in reducing cardiovascular disease incidence and death, primarily through prevention of ischemic cardiac damage. The Cholesterol Treatment Trialists' (CTT) Collaboration meta-analysis on patient-level data from large RCTs demonstrated that statin therapy is efficacious in reducing major vascular events (myocardial infarction, ischemic stroke, coronary revascularization), reducing risk by 23% for each 25 mg/dl LDL cholesterol is reduced.[1,2] Inhibiting inflammatory proteins, such as C-Reactive Protein, is likely the mechanism by which statins also decrease risk of venous thromboembolism.[7]

62.3% of all persons in the US are estimated to be indicated for statin therapy[8] under the new American College of Cardiology/American Heart Association Guidelines.[9–14] The first objective of this dissertation is to better elucidate the safety profile of statins, particularly for risk of muscle symptoms. The second objective is to estimate effectiveness of statins in preventing venous thromboembolism.

HEART FAILURE (HF), both ischemic and non-ischemic, is an important sub-group of persons with heart disease. Over 6 million Americans currently have HF, and was listed as a cause of death for 370,000 persons in 2018.[15] HF incidence varies widely by race and gender, however. Black men are at significantly increased risk of HF incidence when compared to white men (HR=2.55), whereas men overall are more likely than women to experience HF (HR=1.65).[16] In the Atherosclerosis Risk in Communities (ARIC) study, a 35+ year cohort of over 50,000 US adults who were disease-free at baseline, estimated that 54% of all incident HF can be explained by presence of coronary artery disease, obesity, smoking, or diabetes mellitus.[17] These risk factors are poorly controlled in those with low access to care.[18] Thus, the third objective of this dissertation is to provide regular medical services to the uninsured in Galveston, monitoring vitals and need for medications at a twice-weekly cadence.

Statin-Associated Muscle Symptoms

Although statins are efficacious in preventing cardiovascular disease, statin-associated muscle symptoms (SAMS) may lead to non-adherence or discontinuation with therapy and ultimately to poorer cardiovascular outcomes.[13] Most RCTs have shown small, insignificant increases in risk for SAMS, although patients taking statins may complain of muscle problems and may discontinue therapy due to muscle problems.[9] For example, a 2016 meta-analysis found a non-significant increase in myopathy. However, the trial did not report on the more mundane myalgias that often cause statin attrition.[9] These milder symptoms are the public health concern, as statin non-adherence can lead to significant increases in risk of adverse cardiovascular events.[9] Observational studies

suggest that these mild SAMS may occur as often as 7-29% of patients.[13] One review[19] suggested that clinical observations of increased muscle problems with statin therapy may be due to patient expectations. SAMS also may be more likely with higher intensity therapy. Although this is assumed to be true, especially in light of markedly elevated risk of muscle events in two RCTs studying simvastatin 80 mg compared to lower-dose therapy,[20,21] few other RCTs have examined high intensity therapy.[22,23] This study will use a network meta-analysis (NMA) to combine evidence across large published trials to estimate the risk of SAMS by treatment intensity. In contrast to pair-wise meta-analysis (MA) that directly estimates causal effects, a NMA can indirectly estimate risk between placebo and moderate, moderate and high, and between placebo and high intensity treatment – even though placebo, moderate, and high intensity treatment levels were not directly compared.

Statins and Venous Thromboembolism

While cardiovascular disease and venous thromboembolic disease share similar risk factors, their etiologies are distinct.[24] Yet, statin therapy may decrease risk of venous thromboembolism through an anti-inflammatory pathway.[3,24] Specifically, it may decrease isoprenylation of inflammatory and pro-thrombotic signaling molecules, thereby reducing thrombotic events.[25] The JUPITER RCT demonstrated high-intensity rosuvastatin decreased risk of VTE by 43% compared to placebo.[3] Subsequently, a meta-analysis of 23 RCTs estimated 15% significant reduction in VTE with any statin therapy compared to placebo.[26] Their discussion hypothesized several, inflammation pathways statins may down-regulate. While this finding has not translated to other inflammatory

processes (i.e., non-significant reductions in rheumatoid arthritis disease with statin therapy vs. placebo in the TRACE RA trial),[27] it remains unknown if statins are associated with decreased risk/odds of VTE in other high-risk populations.

Hormone Therapy, Statin therapy, and VTE

Large RCTs[28,29] and pooled evidence in meta-analyses[30] of RCTs indicate that HT increases the relative risk of venous thromboembolism (VTE). Risk tends to be higher with combined HT and lower with longer duration of use. A 2017 meta-analysis[30] pooled results from HT RCTs in post-menopausal women for oral, transdermal, subcutaneous or intranasal modalities with estrogen alone or with progestins. In healthy women relative risk for VTE (pulmonary embolism, PE, and deep vein thrombosis, DVT) was double that of placebo for estrogen alone (RR=2.54, 1 study, 3 years) and quadruple for combined, continuous therapy (RR=4.28, 2 studies, 3 years, Analysis 1.32). Risks tended to decrease with duration of treatment, for example relative risk of VTE in the largest trial with combined HT declined from 3.59 at 1 year to 2.98 at 2 years, 2.54 at 3 years, and 2.0 at 5 years. Most participants in these trials were over 60 years of age when they began estrogen therapy for the first time: 69% of the WHI women and 84% of the HERS participants were 60 or older at baseline.[31] Thus, these samples of patients were older and were being given doses of estrogen that exceed those given today for peri-menopausal symptoms.[32] Given that VTE risk increases with age, these results may not generalize to perimenopausal, younger women.[33] Changes in hormone therapy formulations (i.e., lower dose formulations) may render prior HT evidence less generalizable for contemporary clinicians. Further, the “timing hypothesis” derived from

recent RCT meta-analyses suggests that initiating HT in younger women may have lower risk of VTE, but may be harmful in older women due to existing atherosclerotic disease.[34] Thus, it is uncertain to what degree HT risk may vary with age.

Statin therapy, however, may reduce the risk of VTE due to HT. Results from a nested case-control study suggest that statin therapy may reduce the risk of HT. In a UK-based case-control study, cases of VTE (23,505) were compared to 1:10 age-matched controls (231,562) from 1987-2008 (21 years) to estimate the effect of exposure to statins and HT in women 50-79 years of age in the General Practice Database.[35] Statin monotherapy was associated with a 17% odds reduction of VTE (OR=0.83), and HT monotherapy was associated with 52% significantly higher odds of VTE compared to those not on HT (OR=1.52). For those not on a statin, HT had a 51% significantly higher likelihood of VTE compared to those not on HT (OR=1.51, n=216,952 with 19,703 cases). Combined statin and HT suggested an attenuated associated of VTE compared to HT alone (OR=1.21; 95% CI: 0.83-1.76, n=21,335 with 2,152 cases).[35] Thus, statin therapy may be associated with decreased VTE in HT, but more investigation is needed in a younger, American population.

Heart Failure, Statins, and Beyond

While statins have been touted as a ‘wonder drug’ for preventing cardiovascular disease (CVD), they are not efficacious in reducing poor heart failure (HF) outcomes such as hospitalization, death, and disease progression despite the protective effect from ischemic disease.[36–39] Therefore, HF hospitalization remains a leading cause of morbidity, mortality, and cost-burden for the US healthcare system.

Because the Affordable Care Act (ACA, 2009) functionally equated 30-day readmission with negligent care, tying Central Medicare and Medicaid Services (CMS) reimbursement with absence of these events, HF hospitalization has remained an intense focus of healthcare administration.[40] A systematic review of 34 studies, estimated up to 75% of 30-day readmissions are likely for avoidable causes like HF volume overload.[41] Up to 25% of readmissions, however, were linked to cases where best practices were followed. Thus, the ACA ties reimbursement for services to events that frequently do not represent poor quality of care.

There have been numerous attempts to reduce readmission in HF. One network meta-analysis of 53 RCTs demonstrated a 22% significant reduction in readmission risk for patients receiving home health nursing visits and a 20% significant incidence rate reduction in readmission for disease management clinics.[42] Education regarding medication compliance, diet, and water intake as well as early follow-up visits with the patient's cardiologist or primary care physician post-discharge have been shown to marginally reduce 30-day readmissions.[43] Notably, telehealth visits alone in these studies were insufficient in significantly reducing readmission risk. One systematic review estimated that, despite these interventions, up to 75% of 30-day readmissions for HF are avoidable.[41]

OBJECTIVE

Thus, the purpose of this dissertation is to improve the evidence base for cardiovascular disease management in the United States. Statin therapy may cause adverse musculoskeletal events, but the relative risk of events compared to placebo is

likely smaller than observational studies show. Aim 1 is ***to estimate the risk for musculoskeletal events with statin therapy in randomized controlled trials (RCTs)***. Further, while an abundance of evidence is available for statin therapy in preventing major, arterial vascular events, the role statins play in preventing VTE still requires investigation. Women are contraindicated from taking HT, which greatly improves quality of life, when risk factors for VTE are present. If statins mitigate that risk, more women may safely take HT for perimenopausal symptom relief. Thus, Aim 2 is *to* ***estimate the risk of VTE in a nested case-control study of post-menopausal women by statin and/or HT exposures***. Finally, it is important to evaluate the feasibility of the HF disease management clinic in reducing HF readmissions. The third aim is to ***obtain pilot data on the feasibility and estimate effect size of a HF disease management clinic for program participation and reductions in all-cause readmission rates at 30 days in uninsured patients.***

RESEARCH ACCOMPLISHMENTS TO DATE

I have successfully published one study estimating the relative and absolute risk of musculoskeletal adverse events in large, randomized controlled trials (see Aim 1; Davis, JW; Weller, SC; ***BMJ OPEN: DAVIS & WELLER***).[44] I was also recently invited to provide an editorial on meta-analysis methods and implications for cardiovascular disease prevention evidence for the Journal of American College of Cardiology (JACC), which was published in May 2022.[45]

Further, I contributed on a study estimating incidence of venous thromboembolism (VTE), deep venous thrombosis (DVT) without pulmonary embolism (PE), PE with or

without DVT, and cerebral venous thrombosis (CVT) on a study now published at BMJ Open (***Susan C Weller, John W Davis, Jacques Baillargeon et al.: Incidence of Thrombotic Events in a Commercially-Insured US Population).***[46] To estimate the risk of VTE, CVT, or other venous thromboembolic conditions in a US insured population, we utilized OPTUM data from 2015-2019 and calculated incidence of each outcome for each quarter and overall for the five most recent years prior to the pandemic (2015-19). We also compared our findings to a systematic review of other cohort studies that had estimate VTE and CVT.

For Heart Failure, I have completed a retrospective chart review of all uninsured heart failure patients admitted to UTMB between 2018-2019, and compiled univariate frequencies of key morbidity and mortality measures among them (unpublished, preliminary data). We have also published a Letter to the Editor (link: ***Academic Medicine***) highlighting the early success of the CHFC3 program.[47] The program was awarded a $50,000 President's Cabinet Award for its implementation, for which I am the Principal Investigator. I have submitted an R34 Clinical Trial Planning Grant to the National Heart, Lung, and Blood Institute to assess the risk of hospitalization and/or emergency department usage in patients with heart failure within the CHFC3 program compared to controls. I have also been awarded a grant ($10,000) from the Institute for Translational Sciences to study the role of nurses in heart failure care with point-of-care ultrasound (UL1TR001439).

OTHER WORKS

I have also conducted one retrospective chart review to create a prognostic model for admitted COVID-19 patients in development of severe disease, defined as 7 or greater on the World Health Organization scale (now published at BMJ Open).[48] All patients admitted to UTMB hospitals with a diagnosis of COVID-19 infection were eligible for inclusion. Variables assessed included age, weight/BMI, select lab values (i.e., troponin, C-Reactive Protein). The initial sample was dated from March 2020 to August 2020, and contained 349 patients and backwards selection was used to construct a parsimonious model. I also contributed to a study that utilized generalized estimating equations (GEEs) to assess odds of poor self-reported health and psychological distress in the IPUMS-MEPS database. This data, constructed from Center for Disease Control surveys, contains a nationally representative sample of workers in the United States, aged 18+, who are non-institutionalized. The primary independent variable was type of compensation received (piece rate vs annual salary), and three proposed moderators were tested (educational status as less than college degree versus greater than or equal to college degree; income as less than 145% FPL versus greater than or equal to 145% FPL; and health insurance as insured or not insured). We found significant associations with insecure income and health that persisted despite controlling for confounding. This paper is currently in revision at a prominent social science journal.

I have published two essays on my work as a physician-scientist in a free clinic setting,[49,50] I have also peer reviewed several manuscripts for Annals of Family Medicine, The Journal of the American Board of Family Medicine, and The Journal of the American College of Cardiology. These projects improved my analytic skills and provided valuable insight on development of studies in OPTUM. My coursework, to date, includes

categorical data analysis and numerous other data science courses; I have thoroughly developed my use of SAS, R, and STATA for projects.

METHODS: AIM 1. ESTIMATE THE RISK FOR MUSCULOSKELETAL EVENTS WITH STATIN THERAPY IN RANDOMIZED CONTROLLED TRIALS (RCTS).

Significance

While most RCTs have shown small, insignificant increases in risk for SAMS, although patients taking statins may complain of muscle problems and may discontinue therapy due to muscle problems.[9] The purpose of this study was to elucidate the relative and absolute risk of adverse musculoskeletal events in large, well-designed statin RCTs. This work is now complete. In brief, PubMed, Cochrane Database, Web of Science, and clinicaltrials.gov were searched for “systematic reviews” and “meta-analysis” in the title, abstract, or keywords prior to January 31, 2021to identify eligible trials (Prospero #CRD42019112758). Double-blinded RCTs to improve lipid levels comparing statin therapy to placebo or higher-lower dose statin therapy were selected. In order to detect most adverse events, RCTs were selected that had at least 1,000 participants with two years of intended follow-up, where statin treatment was not given with other prescription drug therapies, and results contained reports on muscle-related adverse events. Both authors independently reviewed trials for final inclusion and coded each for quality with Oxford Center for Evidence-based Medicine ratings[51] and a five-point Jadad quality score.[52] Any disagreements were reconciled by joint review and discussion. Studies were classified by intensity of statin treatment (“high” or “moderate”) according to American Heart Association definitions for potency in reduction of lipid levels.[53] High intensity

signifies an expected 50% or greater reduction in LDL-C levels when taking that statin (i.e., 80 mg atorvastatin) and moderate signifies 30-50% reduction in LDL-C.[53]

Adverse muscle-related events were coded into five main outcomes: any patient-reported muscle complaint coded from reports of “muscle aches”, “pains”, “cramps”, “stiffness,” “musculoskeletal disorders,” etc.; the second focused on only myalgia or muscle pain. The third focused on attrition due to musculoskeletal complaints. A fourth captured explicit reporting of rhabdomyolysis, with or without a trial definition. The fifth was elevated creatine kinase, greater than ten times the upper limit of normal (CK >10x ULN). This threshold was used to distinguish this outcome from less meaningful CK increases and also because CK>10xULN is commonly reported in RCTs. Subsequently, pairwise and network meta-analysis were performed in order to estimate the risk of these events by statin intensity, both from direct and indirect RCT evidence. Heterogeneity bias risk was quantified using I^2 methods,[54] and funnel plots were used to assess whether individual trials may be significantly different from other included trials.

Davis, JW; Weller, SC: Intensity of statin therapy and muscle symptoms: a network meta-analysis of 153 000 patients | BMJ Open. Published June 2021.

METHODS: AIM 2. ESTIMATE THE RISK OF VTE IN A NESTED CASE-CONTROL STUDY OF POST-MENOPAUSAL WOMEN BY STATIN AND/OR HT EXPOSURES.

Significance

Many women suffer from post-menopausal symptoms, such as ‘hot flashes’, vaginal dryness, disruptions in sleep patterns, and inability to concentrate, but who are not prescribed hormone therapy (HT) because of possible risk of a venous

thromboembolism (VTE), stroke, or myocardial infarction (MI). Clinical trials in older post-menopausal women estimated that HT may double the risk for venous thromboembolism (VTE) and increase risk for stroke by approximately 30%. However, most of the trial participants initiated HT after 60 years of age and these trials were conducted two decades ago when higher dose estrogen was standard (0.625mg). Evidence suggests that vascular risk may be lower when initiation is nearer menopause[30,55] and risk conferred by lower dose estrogen exposure in women in their 50s is not known. Also, recent cohort studies suggest that breast cancer risk may be low with HT (HR=0.99), using observational follow-up data from the WHI trial.[56] Statin therapy may reduce risk for venous thromboembolic events by, on average, 15%.[26] There is, however, little evidence on statin effectiveness in reducing adverse events from HT.

This project examined the association between statin and/or HT exposure with VTE in an age-matched nested case-control study in a large health administrative database (OPTUM). This was a replication study of Fournier et al. in a younger, US population. Cases of VTE will be defined by ICD codes and controls were matched by age (+/- 2 years) on a 1:10 ratio to maximize sample sizes for statin and HT usage. The sample was limited to women 50-65 years of age: the lower bound age, 50 years, was chosen based on the average age at menopause[57]; the upper bound was chosen based on the age at which most people transition to Medicare, which limits claim accuracy.

Data Source

Optum's de-identified Clinformatics® Data Mart Database is an ideal setting for this study, as it contains claims for approximately 62 million unique enrollees from 2008-

2018.[58] Excluding Medicare Advantage subscribers, there are approximately 15 million annual members, a third of whom have continuous enrollment for three or more years. Because VTE incidence is low (about 217 cases in 100,000 person years when including subsequent anti-coagulant prescription in case definition)[33], OPTUM is one of the few datasets containing sufficient sample for analysis. Medicare data also has ample power for this analysis, but the 65+ year age range misses the study's target age range.

Statistical Analysis

The **goal of Aim 2** was to determine if there is increased likelihood of VTE associated with HT and to examine whether these risks vary by dose of treatment, route of administration, duration of treatment, other prescribed medications, underlying prothrombotic disease, underlying CV disease, recent hospitalization, and clinical characteristics. We will conduct logistic regression analyses for women 50-65 years old receiving HT and the matched sample not receiving HT. Matching was on index date and age at index date, which is considered as "loose match",[59] but conditional analysis is planned in keeping with methods employed by studies previously performed in this area.[35,60,61]

First, characteristics of women receiving HT and those not receiving HT were compared (chi square & t-test) to assess differences in their co-morbidity profiles (i.e., hospitalization, Elixhauser comorbidities) on VTE. Covariates not significantly associated with VTE ($p>0.0001$ for screening) were dropped prior to primary hypothesis testing. Second, multivariable models (conditional logistic regression matched on age and index date) were constructed to assess the main effects of estrogens **(Aim 2.1)** and statins

(Aim 2.2) on VTE, in addition to the interactive effect of HT and statin therapy **(Aim 2.3)** on VTE, while controlling for comorbid conditions. Two-sided hypothesis tests (alpha=0.05) were utilized throughout. All analysis was performed in SAS (Version 9.4, Cary NC).

METHODS: AIM 3. OBTAIN PILOT DATA ON THE FEASIBILITY AND ESTIMATE EFFECT SIZE OF A HF DISEASE MANAGEMENT CLINIC FOR PROGRAM PARTICIPATION AND REDUCTIONS IN ALL-CAUSE READMISSION RATES AT 30 DAYS IN UNINSURED PATIENTS.

Significance

Heart Failure (HF) hospitalization remains a leading cause of morbidity, mortality, and cost-burden for the US healthcare system despite intensive mitigation efforts.[62] Because the Affordable Care Act (2009) functionally equated 30-day readmission with negligent care, tying Center for Medicare and Medicaid Services (CMS) reimbursement with absence of these events, HF hospitalization has remained an intense focus of healthcare administration. It is estimated that 35% of all 30-day readmissions reported to CMS are HF patients.[63] 772,000 more cases of HF are expected by 2040 in the United States,[64] bringing even more urgency to this issue.

HF 30-day readmission rate estimates range from 18.2-23.0% over time.[63] Khan et al., using Healthcare Cost and Utilization Project (HCUP) National Readmission Database, provide recent estimates for incidence of 30- and 90-day readmission for heart failure. They utilize a unique approach for estimating incidence – by taking an index period of time, observing the total number of HF admissions that are considered 30 or 90 day readmits, with a denominator of all HF admissions during that index period. Of

approximately 6 million HF admissions from 2010-2017, 18.2% were readmitted within 30 days and 31.2% were readmitted within 90 days.[63] In an HCUP statistical brief, Fingar et al. estimated that 23% of all HF admissions were readmitted within 30 days, making HF the most common cause for 30-day readmissions of all diagnoses; the uninsured were readmitted at similar rates (17%).[65]

Disease management clinics can decrease HF readmissions. A network meta-analysis of 53 RCTs (n=12,356; mean age from 57-85) examined telephone visits, education sessions, pharmacist consultation, telemonitoring/support, nurse home visits, nurse case management, and disease management clinics compared to routine follow up in risk of 30-day readmission. Nurse home visits significantly decreased HF readmissions by 35% (IRR 0.65), Nurse Case management decreased incidence by 23% (IRR 0.77), and Disease Management Clinics decreased rates by 20% (IRR 0.80). Disease management clinics typically include follow-up with a cardiologist within two weeks of discharge, intermittent telephone consultation, and emphasis on clinical surveillance of vitals, medication adherence, and labs. The treatment groups' average age ranged from 61 to 78 (10 RCTs, n=1958). It remains unclear what, if any, effect in reducing HF admissions might exist when combining intensive, nurse-led disease management with POCUS.

Purpose

The purpose of this project, therefore, was to conduct a pilot study on the feasibility and possible effectiveness of a novel disease management clinic in heart failure patients within 30 days of discharge **(Aim 3)**. Patients visited twice weekly for the first 30 days

post-discharge. Weekly labs were taken, and standard of care medical visits will be scheduled.

Innovation

The implications of this study have significant potential impact on heart failure disease management, which is a critical area of focus for the United States health system. Because emergency heart failure care is immensely detrimental to patient quality of life and the health system's volume strain, efforts that meaningfully reduce risk of emergency services use and/or hospitalization deserve intensive effort.

The setting for this project also provides novelty. St. Vincent's Clinic provides an opportunity to intensively study the effect of the proposed model in an uninsured setting.

Preliminary Data

In order to estimate patient volumes and demographics of HF admissions and readmissions, a census of all patients without insurance admitted to UTMB Galveston with a primary Diagnosis-Related Group (DRG) of HF (n=55) from September 2018 - September 2019 was obtained.[66] Two coders reviewed each chart for factors included in a validated readmission risk prevention calculator.[66] Patients averaged 67 years of age, 31% were Black/African-American, 38% had DM2, 36% had coronary stents; 33% had COPD; 24% had a psychiatric condition; and 69% had some smoking history. Of those, 5 patients (11%) were re-admitted within 30 days for HF. Because the sample size was small, this precluded multivariable regression analysis. This readmission estimate excluded heart failure patients readmitted to a non-UTMB hospital, and did not include

League City or Clear Lake hospitals, each of which sees commensurate HF volumes. Thus, patient volume may be three times larger annually. Thus, this study was limited to providing expected volume for program feasibility.

Two estimates of 30-day readmission rates were estimated for UTMB. First, HF hospitalizations from January 2017 to December 2020 were estimated Epic's Clarity database, a comprehensive database of all patients admitted to UTMB for any cause. Searching for HF by DRG identified a total of 5674 HF admissions: 1127 (19.9%; 95% CI 18.8%-20.9%) were readmitted for any cause within 30 days. Second, HF hospitalizations from January 2019-December 2020 were estimated using UTMB's Readmission Report dashboard, a proprietary tool that captures all patient services at UTMB facilities. Searching for all heart failure patients without insurance who were admitted to UTMB from 2019-2020, 235 patients admitted to any UTMB facility were identified. Of those, 31 (13.19%; 95% CI 9.4%-18.2%) had been readmitted for any cause within 30 days to a UTMB facility within 2019. The rate January-December 2020 was higher, at 15.67% (21/134; 95% CI 10.4%-22.8%). Neither estimate includes patients who were readmitted within 30 days to another facility outside of UTMB. ***These estimates are largely in line with those of Fingar et al. for uninsured patients (17%)***, though this estimate is now possibly out of date (published 2014 using 2010-2013 data, just after the Affordable Care Act was passed)***.***[65]

Setting

UTMB is a multi-campus, academic medical center in the Gulf Coast region of Texas, serving approximately 1,100 patients annually for HF. The St. Vincent's Clinic

(STVC) in Galveston is sponsored by UTMB and provides free care to over 3,500 patients annually. Services include but not limited to primary care, case management (food/housing services), counseling, nutrition, pharmacist consultation, respiratory care, occupational/physical therapy, and social work services. Approximately 3,500 unfunded patients, with an average age of 48 years old, receive care as part of STVC outreach in the past year. It is estimated that one-third of patients served by our free clinic partner identify as African American, one-third as Hispanic, and one-third as Caucasian. The proposed intervention is set at STVC.

Subjects

This was a quality improvement project as determined by UTMB's IRB, and was determined to be exempt from their oversight. Patients were identified from all UTMB hospitals prior to discharge as 1) uninsured, 2) admitted for a heart failure diagnosis-related group to a UTMB facility, and 3) willing to participate. Patients will receive standard of care, and not receive any exploratory care during the course of this intervention. Patients were scheduled for medical visits as indicated by their supervising clinician, and provided free transportation and medication according to their needs.

All patients who entered the CHFC3 program were identified in Epic by selecting patients within STVC Service Department with at least 1 appointment under the "CHF Rm" and "CHF Provider" resources, which are unique to program enrollment. After all data were collected, identifying information was deleted and destroyed. The de-identified data was used for all analysis.

Procedure

The primary intervention was twice-weekly surveillance at the St. Vincent's Clinics for vitals and medication adherence; all patients receiving care at the STVC Interprofessional Clinic receive similar services but at less frequent intervals. Within 3 days of hospital discharge, patients were scheduled to receive care at STVC twice weekly for up to 60 days. Patients deemed “low risk” by their provider were eligible to decrease their visit frequency to weekly after 30 days. Risk was according to clinician judgment, but providers were encouraged to consider the patient’s Seattle Heart Failure model score (which predicts mortality at 1 year).[67]

At Visit 1 (their baseline medical appointment following discharge), patients were queried on their interest in participation in CHFC3. Patients who declined received regular medical care at STVC or elsewhere, according to preferences. Patients had blood pressure, heart rate, SpO2, weight, and respiration rate measured at each visit (twice weekly) by a medical professional or student. Each week, patients also received a basic metabolic panel (BMP) measured to confirm renal function and electrolytes were at baseline, in addition to any other labs requested by faculty clinical staff. In addition, patients were scheduled for interprofessional services as capacity allows. Abnormal lab values or vitals were reported directly to the supervising clinician.

The recommended schedule for interprofessional activities is demonstrated in Table 1, following references. All patients were given a full medical evaluation during Visit 1, where clinicians were instructed to provide guideline-directed medical therapy. The program provides free medications to all patients, consistent with the services provided to all other patients at St. Vincent’s. During Visit 2, patients received pharmacist consultation, counseling services, and occupational therapy evaluation. Case

management was consulted to address outstanding social needs. Intermediate visits (Visits 3-4) were performed by a nurse, where vitals and medication checks were performed. Visit 5 (5 weeks post-discharge) was another medical evaluation.

This was a quality improvement project to bring STVC in line with the standard of care demonstrated in other locations. Replicating other disease management clinics has not been performed in uninsured populations previously, however. Patients may elect to receive additional visits from any discipline or to decline care from some specialties.

Measures

A table of all measures can be found in Table 2. The primary demographic, laboratory, and exam measures to be collected at Visit 1 in the program were age, sex, race/ethnicity, discharging hospital, basic metabolic panel (which includes renal function and blood sodium), Brain Natriuretic Peptide (BNP), POCUS measurements (LV EF, Left Atrial Enlargement, Right Ventricular Enlargement, Inferior Vena Cava Collapsibility Index, B-Line Number), Vitals (Weight/BMI, blood pressure, heart rate, respiration rate), New York Heart Association (NYHA) functional class (I, II, III, IV)*, history of diabetes (as measured by HbA1C), and number of visits completed. At their exit visit (60 days post-discharge), patients repeated BMP, BNP, Vitals, and NYHA Functional Class Assessment. Patient data also included history of transportation and food insecurity, as documented in the Epic Social Determinants of Health button modules (any versus none or missing). All patients were given a standardized regimen of maximally-tolerated beta-blocker, SGLT2 inhibitor, mineralocorticoid receptor antagonist (spironolactone), and ACE/ARB/ARNI therapy as indicated, so medication exposure was not assessed. Lab

draws will be performed at regular intervals according to standard of care, and may be unavailable where the clinician felt benefits were outweighed by risks of venipuncture.

Outcomes

PARTICIPATION

First, a census of all HF patients without insurance who were discharged from a UTMB hospital was identified using Epic Clarity (see **Subjects)** and the sub-group who presented for at least one visit at STVC was identified. Participation was categorized as follows: patients who never attended STVC, patients who presented at STVC (Visit 1) but declined further participation, and patients who completed at least two visits. The total number of visits over the program course (2 months, up to 16 visits) for each patient was recorded.

READMISSION

Patient history at 30 days after discharge was coded as readmitted or not readmitted for any reason. Readmission location (UTMB or not UTMB) was codified. Patients were asked if they have received care from a hospital since the previous visit. Epic contains reporting tools which automatically register hospitalizations that each patient accrues at UTMB and other sites (through CareEverywhere, which links all hospitals on Epic who consent) over their lifetime. Readmission was defined as any inpatient stay within 30 calendar days following the original discharge date to any location.

Statistical Analysis

PARTICIPATION

The goal of Aim 3 was to obtain pilot data on the feasibility and effect size of the CHFC3 Program in reducing all-cause readmission rates at 30 days in uninsured patients. In order to assess feasibility of participation, univariate frequencies on program uptake (yes/no) and participation frequency (count of visits within 60 days of discharge) were obtained. 95% confidence intervals were estimated. Then, to assess whether participation varies by factors associated with readmission, bivariate analysis of sociodemographic and medical history variables were assessed (see **Measures**). ***The crude proportion of patients who did not enroll but were readmitted within 30 days was assessed to estimate magnitude of selection bias.***

READMISSION RATES

This project also estimated the proportion of 30-day readmissions in HF patients enrolled in the program during 2021 and compares the proportion to previous UTMB of HF from 2017-2019 (19.9%; described in **preliminary data**). First, the proportion of patients who are admitted at 30 days within CHFC3 was estimated (with 95% CI). Second, the observed proportion was compared to the UTMB 2017-2020 estimate (19.9%) for overall readmission rate for HF at 30 days (one-sample proportion test). Previous evidence from interventions suggest that HF disease management clinics may be 20% effective[68] in reducing HF readmissions. Assuming a reduction of 20% with CHFC3, compared to 19.9% (readmit rate of 0.159 at 30 days), 599 patients would be needed to achieve 80% power to detect this effect. Given this is a pilot study ***assessing feasibility***,

however, the aim was simply to estimate the proportion of readmits that occurred and to estimate possible reduction in 30-day.

PARTICIPATION AND READMISSION

The number of visits attended in the program (0, 1, or 2+) was used as a predictor of HF readmission. Patients who attend their post-discharge visit, which is standard of care, were considered to have attended “Visit 1”. Spearman correlations were utilized to assess this association. All analysis was performed in SAS (Version 9.4, Cary NC). Everyone with baseline data (Visits 1 and 2) was considered “exposed” to the program (<2 visits is unexposed).

Limitations

Because this study did not have a control group, effectiveness could not be estimated. However, the observed rates of participation and 30-day readmissions informs feasibility and rationale for future studies. It was not clear whether patients could adhere to twice-weekly program participation, especially where social determinants of health, like transportation or substance abuse, may limit travel to and from clinic. However, free transportation was provided to patients who request it. There also may be selection bias in who chooses to attend CHFC3 versus those who do not enroll. This potential bias was estimated as described in Statistical Analysis. Patients who enroll may have been more motivated to remain adherent to medications, be less sick, or have less meaningful socioeconomic limitations than those who do not. Thus, this study provides pilot data for appropriately powering future studies and identifying barriers to participation.

Chapter 2 Statins, Musculoskeletal Symptoms, and Meta-Analysis in Large, Randomized Controlled Trials[1]

INTRODUCTION

The Cholesterol Treatment Trialists' (CTT) Collaboration meta-analysis on patient-level data from large RCTs demonstrated that statin therapy is efficacious in reducing major vascular events.[1,2] Statin therapy is now prominent in cholesterol management guidelines. [9–14] Statin-associated muscle symptoms (SAMS), however, may lead to non-adherence or discontinuation with therapy and ultimately to poorer cardiovascular outcomes.[13] Most RCTs have shown small, insignificant increases in risk for SAMS, although patients taking statins may complain of muscle problems and may discontinue therapy due to muscle problems.[9] For example, a 2016 meta-analysis found a non-significant increase in myopathy. However, it did not report on the more mundane myalgias that often cause statin attrition.[9] These milder symptoms are the major public health concern, as statin non-adherence can lead to significant increases in risk of major adverse cardiovascular events.[9] Observational studies suggest that these mild SAMS may occur as often as 7-29% of patients.[13] One review[19] suggested that clinical observations of increased muscle problems with statin therapy may be due to patient expectations.

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[1] This aim was previously published in BMJ Open, June 2021. See:

Davis, JW; Weller, SC: Intensity of statin therapy and muscle symptoms: a network meta-analysis of 153 000 patients | BMJ Open.

SAMS also may be more likely with higher intensity therapy. Although this is assumed to be true, especially with the evidence against simvastatin 80 mg,[20,21] few RCTs have examined high intensity therapy.[22,23] This study used a network meta-analysis (NMA) to combine evidence across trials to estimate the risk of SAMS by treatment intensity. In contrast to pair-wise meta-analysis (MA) that directly estimates causal effects, a NMA can indirectly estimate risk between placebo and moderate, moderate and high, and between placebo and high intensity treatment – even though placebo, moderate, and high intensity treatment levels were not compared within a single trial. Results contribute to the debate about whether muscle adverse events are due solely to patient expectations or whether statins might have an independent effect on symptoms. Finally, this study contributes to the ongoing debate as to whether statins cause myalgias and attrition due to muscle problems without marked creatine kinase (CK) elevations.

METHODS

The Trials

PubMed, Cochrane Database, Web of Science, and clinicaltrials.gov were searched for “systematic reviews” and “meta-analysis” in the title, abstract, or keywords prior to January 31, 2021to identify eligible trials (Prospero #CRD42019112758; see Online Supplements for search terms and strategy). Double-blinded RCTs to improve lipid levels comparing statin therapy to placebo or higher-lower dose statin therapy were selected. In order to detect most adverse events, RCTs were selected that had at least 1,000 participants with two years of intended follow-up, where statin treatment was not given with other prescription drug therapies, and results contained reports on muscle-

related adverse events. Both authors independently reviewed trials for final inclusion and coded each for quality with Oxford Center for Evidence-based Medicine ratings[51] and a five-point Jadad quality score.[52] Any disagreements were reconciled by joint review and discussion.

Exposure Variable

Studies were classified by intensity of statin treatment ("high" or "moderate") according to American Heart Association definitions for potency in reduction of lipid levels.[53] High intensity signifies an expected 50% or greater reduction in LDL-C levels when taking that statin (i.e., 80 mg atorvastatin) and moderate signifies 30-50% reduction in LDL-C.[53]

Outcome Variables

Adverse muscle-related events were coded into five main outcomes. The first outcome was for any patient-reported muscle complaint coded from reports of "muscle aches", "pains", "cramps", "stiffness," "musculoskeletal disorders," etc. The second focused on only myalgia or muscle pain. The third focused on attrition due to musculoskeletal complaints. A fourth captured explicit reporting of rhabdomyolysis, with or without a trial definition. The fifth was elevated creatine kinase, greater than ten times the upper limit of normal (CK >10x ULN). This threshold was used to distinguish this outcome from less meaningful CK increases and also because CK>10xULN is commonly reported in RCTs. All outcomes were coded as reported by original investigators in

published and online reports, and were independently coded by both authors. Ambiguities were resolved by contacting trial investigators.

Analysis

Published aggregate data from each trial were used. A crude estimate of incidence was calculated from the total number of cases observed divided by the total person-years (using the median or mean follow-up time for each study) and a chi square test was used to test for homogeneity in the proportion of incident cases across studies, within each arm, although these crude estimates ignored randomization. To facilitate interpretation and comparison of results to the original trials, risk of adverse effects was estimated with pooled relative risk (RR). A 0.50 continuity correction was added to aggregate frequencies for trials that observed zero cases of an outcome in either treatment arm. A pairwise meta-analysis (MA) was used to estimate the RR (Mantel-Haenszel method, random effects as implemented in the meta package in R)[69,70] for a statin effect by treatment intensity from direct (head-head comparison) trials (Online Supplement contains detailed results for random effects with Mantel-Haenszel and inverse variance methods). Because aggregations across studies are only meaningfully interpreted when results are consistent across studies, heterogeneity among RCTs was assessed with an index of consistency across trials (I^2, Q)[54,71] and funnel plots. When $I^2 \leq 25\%$, results are considered to be at low risk of bias due to heterogeneity; high values (>75%) indicate high risk of bias due to heterogeneity. [54,71] Residual I^2 represents the heterogeneity remaining after accounting for sub-groups of treatment intensity. Cochrane's Q (a sub-component of I^2) indicates the probability that the observed heterogeneity is due to chance. Sensitivity analyses included

omitting outliers identified in funnel plots and using a 0.10 as a “continuity correction”. In addition, analyses were conducted excluding the simvastatin 80 mg studies because of US FDA muscle-related safety warnings.[72]

A network meta-analysis (NMA), conducted in R,[73] used *all* available pairs of comparisons for each outcome to estimate increased risk between the three levels of treatment exposure. Prespecified comparisons were between placebo and moderate intensity, between moderate and high intensity therapy, and between placebo and high intensity. The RR was used to estimate effect size (frequentist, inverse variance method, random effects), so that results would be comparable across original studies and the pairwise meta-analysis above. In contrast to a MA which provides a direct estimate of the RR, a NMA provides estimates by combining direct and indirect evidence from all data. A ratio test was used to test for consistency between NMA direct and indirect estimates.[74] Heterogeneity was assessed with and I^2 and Q statistics.[54,71] Number needed to harm (NNH, the inverse of the absolute difference in incidence) was estimated when the pooled RR was significantly greater than 1.0 and the pooled absolute risk reduction (risk difference, RD) was significantly greater than 0.0. Sensitivity analyses included replacement of zeros with 0.10 and with 0.0001.

RESULTS

Searches yielded 134 relevant reviews, including 2919 RCTs that reduced to 24 unique RCTs that met eligibility requirements (see Online Supplements). Of the 24 RCTs: 17 were placebo-moderate intensity comparisons,[37,38,75–93] 3 were placebo-high intensity comparisons,[7,27,94] and 4 were moderate-high intensity comparisons[20–23] (Table 1). The

active blood pressure treatment arm of the HOPE trial[86] was excluded, but the statin only and placebo only arms were retained, allowing for a statin and placebo comparison. Two trials compared moderate and high intensity therapy using 80 mg/day of simvastatin.[20,21] All 24 RCTs scored the highest quality (1) on the Oxford rating and on the Jadad scale 18 scored 5/5 and 6 scored 4/5 (missing detail on random assignment). The RCTs included heterogenous patient populations, e.g., healthy middle-aged adults[7,77,86,92] to ESRD patients. Sample sizes ranged from 1,255[75] to 20,536[89] with follow-up periods from 1.9[7] to 6.7[20] years. Of the 24 RCTs, six were included in the 2006 meta-analysis,[95] 17 in the 2014 systematic review,[96] 23 in the 2016 meta-analysis,[9] and 18 in the 2013 NMA.[97] None of the previous analyses separated trials into sub-groups by treatment intensity. Crude estimates of incidence increased with intensity of treatment from placebo to moderate intensity to high intensity therapy, but with heterogeneity across trials (Online Supplements).

Any Muscle Symptoms

Twenty-three trials reported some type of muscle symptom[7,20,23,27,38,76–80,82,88,89] myositis,[85] myalgia,[22,75,81,83,84,91,94] myopathy,[75,87] or discontinuation due to muscle-related symptoms.[21,23,37] The pairwise meta-analysis pooled across subsets of trials indicated consistent trial results with a 1% non-significant increase in risk between placebo and moderate intensity therapy, a 3% non-significant increase between placebo and high intensity therapy (Figure 1), and a 5% significant increase between moderate and high intensity therapy (RR=1.05, 95% CI: 1.01, 1.09; p=0.027, 4 RCTs, N=30,720; I^2=0%). Sensitivity analyses indicated that RRs were essentially unchanged without an

outlier[81] identified on the funnel plot, with a 0.10 correction, or without the simvastatin 80 mg trials. (Online Supplements).

The NMA pooled direct and indirect evidence from all 23 trials and suggested increased risk with higher intensity therapy. Results (Table 2) indicated a 1% non-significant increase in risk between placebo and moderate intensity therapy, a 4% significant increase between moderate and high intensity therapy (RR=1.04, 95% CI: 1.00, 1.08; p=0.031), and a 5% significant increase between placebo and high intensity therapy (RR=1.05, 95% CI: 1.01, 1.09; p=0.012). The RRs were consistent across studies (I^2=0%; Q, p=0.54), were not significantly different between direct and indirect estimates (p=0.48), and were not sensitive to substitutions for zero values. Pooled RDs between pairs of treatment groups were not significantly different from zero. There were no outliers in the NMA analysis. Exclusion of the two simvastatin 80mg trials did not meaningfully change risk, but comparisons with high intensity were not statistically significant, likely due to the decreased sample size (Online Supplements).

Myalgia or pain

Thirteen RCTs reported cases of myalgia,[7,27,76,80–83,91,93,94] attrition due to myalgia,[77,79] or pain and/or weakness.[89] The pairwise meta-analysis indicated (Figure 2) a 13% non-significant increase in myalgia between placebo and moderate intensity, a 9% non-significant increase between placebo and high intensity, and a 4% significant increase between moderate and high intensity (RR=1.04, 95% CI: 1.00;1.09, p=0.040, 2 RCT, n=22065; I^2=0%). The three trials comparing placebo and high intensity therapies suggested moderate heterogeneity in results (I^2=45%). Funnel plots did not suggest bias

by any of the studies and there were no zero cells (Online Supplements). Exclusion of the simvastatin 80 mg trial did not meaningfully change the magnitude of risk, although results were non-significant for high intensity compared to moderate intensity therapy possibly due to decreased sample size (Online Supplements).

The NMA results combining evidence for all 13 trials suggested an increase in myalgia with increased therapy intensity (Table 2). There was a 9% non-significant increase in risk between placebo and moderate intensity therapy, a 4% significant increase between moderate and high intensity therapy (RR=1.04, 95% CI: 1.00, 1.08; p=0.046), and a 13% significant increase in risk for high intensity therapy compared to placebo without heterogeneity (RR=1.13, 95% CI: 1.05, 1.23; p=0.002). The RRs were consistent across studies (I^2=0%, Q, p=0.48) and direct and indirect estimates were not significantly different (p=0.63). The pooled RD was significant between high and moderate intensity (NNH=173) and between high intensity and placebo (NNH=154) with low heterogeneity (I^2=20%; Q, p=0.25). Exclusion of the simvastatin 80 mg trial did not change the magnitude of risk although results were not significant for high intensity compared to moderate intensity therapy (Online Supplements).

Attrition

Attrition due to muscle problems was reported by eight RCTs that compared moderate intensity statin therapy with placebo,[37,76,77,79,83,86,87,89,93] three that compared moderate with high intensity therapy,[20,21,23] and none that directly compared high intensity to placebo. In the pairwise meta-analysis (Figure 3), patients on moderate intensity statin therapy had a 13% non-significant increase in attrition due to muscle problems compared

to placebo. Patients on high intensity therapy had a 38% significantly higher attrition rate than those on moderate intensity (RR=1.38, 95% CI: 1.04, 1.82; p=0.024, 3 RCTs, N=20,719) with moderate heterogeneity across trials (I^2=31%). Funnel plots did not suggest bias and there were no zero cells. Exclusion of the two simvastatin 80 mg trials left only one moderate-high intensity comparison RCT (Online Supplements).

The NMA results for the 11 trials suggested that risk for attrition increased with intensity of therapy. There was a 13% non-significant increase in risk between placebo and moderate intensity therapy (Table 2), a 37% significant increase in risk between moderate and high intensity (RR=1.37, 95% CI: 1.09, 1.73; p=0.007), and a 16% significant increase in risk between placebo and high intensity therapy (RR=1.16, 95% CI: 1.15, 2.08; p=0.004). The RRs were consistent across studies (I^2=0%; Q p=0.72) and closely paralled direct results provided by the meta-analysis, but the NMA provided an estimate for the placebo-high intensity comparison for which there were no head-to-head trials. The pooled RD between moderate and high intensity therapy was significant and the NNH was 218. The pooled RD between high intensity therapy and placebo also was significant and the NNH was 186. Exclusion of the two simvastatin 80 mg trials resulted in a slightly lower risk estimate for the moderate to high comparison and a slightly higher estimate for the placebo to high comparison, and both were non-significant (Online Supplements).

Rhabdomyolysis

Rhabdomyolysis was reported on by 14 moderate intensity-placebo comparison RCTs,[37,38,75–79,81–83,88–91] four moderate-high intensity comparison RCTs,[20–23] and three

high intensity-placebo comparison RCTs.[7,27,94] Incidence of rhabdomyolysis was very low and statistical comparisons were not conclusive. Pairwise meta-analysis indicated a 39% non-significant increase in rhabdomyolysis incidence between placebo and moderate intensity therapy, 145% non-significant increase between moderate and high intensity, and a 4% non-significant decrease between placebo and high intensity therapy (Figure 4). Results were inconclusive as estimates were not robust across sensitivity analyses. Approximately half (22/42) of the cells were zeros and RR increased for the moderate-high intensity comparison with a smaller correction and removal of the simvastatin 80 mg trials meaningfully changed effect sizes (Online Supplements).

NMA results based on all 21 trials indicated increased risk for rhabdomyolysis with increased intensity of therapy (Table 2). There was a 22% non-significant increase in risk between placebo and moderate intensity therapy, a 33% non-significant increase between moderate and high intensity, and a 66% non-significant increase between placebo and high intensity therapy with consistency across trials (I^2=0%, Q p=0.99). Direct and indirect RR estimates were not significantly different (p=0.31). Results were not consistent after exclusion of simvastatin 80 mg trials or replacement of zeros, but remained nonsignificant (Online Supplements).

Elevated CK

Of 16 RCTs, 11 compared rates of elevated creatine kinase (CK>10xULN) between placebo and moderate intensity therapy,[37,38,75–78,83,88–92] three compared moderate to high intensity therapy[20–22] and two compared high intensity therapy with placebo.[27,94] Incidence of elevated CK was low. Pairwise meta-analysis indicated (Figure

5) a 17% non-significant increase in CK elevation between placebo and moderate intensity therapy, a 173% non-significant increase between placebo and high intensity therapy, and a 288% significantly higher risk for high compared to moderate intensity (RR=3.88, 95% CI: 1.05,14.31; p=0.042, 3 RCTs, n=26,558) with some heterogeneity among the three trials (I^2=50%). Estimates were not stable across sensitivity analyses. Removal of two possible outliers,[20,77] exclusion of simvastatin 80 mg trials, and adjustment for cells with zeros (9/32) meaningfully changed RR estimates (Online Supplements) .

Using evidence from all 16 trials, the NMA estimates indicated increased risk with increased intensity. NMA results indicated a 14% non-significant increase between placebo and moderate intensity therapy (Table 2), a 359% significant increase in CK elevation between moderate and high intensity (RR=4.59, 95% CI: 2.32,9.10; p<0.0001), and a 425% significant increase between placebo and high intensity (RR=5.25, 95% CI: 2.29,12.03; p<0.0001). Results were consistent across trials (I^2=7%, Q p=0.37) and direct and indirect RR estimates were not significantly different (p=0.57). The pooled RD between moderate and high intensity therapy was significantly different from zero and the NNH was 527. The pooled RD between high intensity therapy and placebo also was significant and the NNH was 589. There were no outliers in the NMA analysis. Although results were homogeneous with the simvastatin 80 mg trials, exclusion of these trials meaningfully reduced risk associated with statin therapy between moderate and high intensity and between placebo and high intensity therapy; and smaller zero replacement values increased risk estimates (Online Supplements).

DISCUSSION

A novel contribution of this study was the application of NMA to estimate the dose-response effect of statin therapy on muscle symptoms using clinically-meaningful categories of treatment intensity. The NMA RR estimates closely paralleled the direct estimates, indicating reliability of estimates and increased risk with high intensity statin therapy. The network meta-analyses provide information about risk by utilizing all available evidence, whereas traditional meta-analyses are limited only to direct, head-to-head comparisons. For patient-reported symptoms, there were non-significant increases in SAMS between placebo and moderate intensity therapy and significant increases between moderate and high intensity therapy. Because simvastatin 80mg therapy is now restricted because of muscle injury,[98] analyses also were run with and without those trials. This did not meaningfully affect results for patient-reported outcomes. Rhabdomyolysis and elevated CK also showed increased risk with higher intensity, but because of low incidence (with 25-50% zero cells) and inconsistency across sensitivity analyses, results were inconclusive.

Double-blinded RCTs and traditional meta-analyses[9,95,96] suggest no significant increase in risk of muscle adverse events with statin therapy. Since most evidence comes from moderate intensity trials, possible adverse effects of high intensity therapy may be masked in aggregate estimates. In this study, high intensity therapy and focused definitions of patient-reported muscle problems detected higher risk. However, the absolute excess of SAMS was less than 1% for all outcomes. In previous meta-analyses, absolute excess of muscle problems also was small, but non-significant.[9,96] The 2016 meta-analysis estimated risk for extreme outcomes (myopathy and rhabdomyolysis), but did not analyze patient reports of milder SAMS that we present and that concern patients.

We did not code for myopathy as an outcome, because we did not have access to patient-level data and could not determine if elevated CK co-occurred with myalgia.

Direct lower-higher dose comparisons in individual RCTs were not consistent, e.g., the SEARCH[20] and A to Z trials found a significant increase in CK and the TNT trial[22] did not. A NMA that compared dosage increments within brands[97] suggested no systematic increase in risk for myalgia or discontinuation with higher dosages. These negative findings may have been due to smaller sample sizes, smaller dosage increments in restricted comparisons, or exclusion of the simvastatin 80 mg trials.[97] In this study, results were homogeneous including the simvastatin 80mg trials and indicated high intensity therapy significantly increased myalgia compared to placebo even after their exclusion. The previous NMA did identify a dose-response relationship between statin dose and mildly elevated CK (2-3x ULN), but only for lovastatin and simvastatin.[97] CK>10xULN may be more interpretable than modest elevations, and in this study it was significantly increased with high-intensity statin therapy. While removal of 80mg simvastatin trials had little effect on patient-reported symptoms, their exclusion resulted in smaller non-significant increases in risk for elevated CK. It is unclear if simvastatin 80mg was responsible for the significant increases in CK.

A practical question concerns how large an excess of cases might be observed with statin therapy for myalgia/pain, attrition due to muscle problems, and elevated CK or rhabdomyolysis. Although estimates based on observational studies suggest that incidence of mild SAMS might be as high as 30% among statin users,[99] RCTs suggest a much lower rate. In this study, pooled risk estimates suggested that for each 173 patients on high intensity therapy one additional patient will experience statin-caused myalgia and

for each 218 patients one additional patient will discontinue therapy due to muscle problems compared to those on moderate intensity therapy. This represents numerous patients who are at greatest risk for major vascular events, as these are often higher risk patients. Discontinuation of statins in the elderly (>75 yrs) may result in 33% increased risk of a cardiovascular event within 3 months [100] and adherence to statins in those 65 and older may reduce mortality by a third.[101]

Myalgias and attrition due to SAMS are important outcomes for the average patient, but have not received as much attention as rhabdomyolysis and myopathy. This study provides evidence that while blinded, moderate intensity statin-takers did not report significantly more general muscle problems or myalgias, but those on high intensity therapy did. Because many myalgia cases occurred without CK elevation increases, this also serves as evidence that SAMS occur in the absence of large elevations in CK. Clinicians with patients who are “statin intolerant” may consider encouraging the patient to first decrease intensity of statin therapy, rather than discontinuing it, in light of these findings.

This analysis also contributes to the “nocebo” debate. A large, unblinded follow-up of RCT patients suggested SAMS are expectation-related.[80] They observed an incidence of 2.03% and 2.00% muscle-related adverse events in statin and placebo groups, respectively, when double-blinded (HR=1.03) and 1.26% and 1.00% in the statin and usual care groups when unblinded (HR=1.41).[80] Both comparisons indicate absolute differences less than 1%. A recent N-of-1 trial[102]also found minimal differences in muscle symptoms when patients took statin versus placebo (blinded), but significantly more muscle symptoms when taking a placebo versus taking nothing (unblinded). Both nocebo

and causal effects are small, although they can result in increased SAMS. In a clinical setting, SAMS with moderate intensity therapy may be the result of patient expectations, but with high intensity therapy SAMS may be due to expectations and statin therapy. Intensity of treatment and patient expectations may need to be considered before making changes in statin therapy in the absence of CK elevations.

A limitation of study-level meta-analyses is that definitions,[103] assessment, and variable reporting of muscle-related outcomes may differ across studies. Aggregation of heterogeneous outcomes and estimated outcomes (e.g., myopathy) not explicitly reported by investigators can mask an effect. Protocol differences may partially explain incidence disparities across studies. However, use of the RR to estimate effect size minimizes bias due to between-study variations in protocol (e.g., using a symptom checklist versus recording spontaneous mention of symptoms and then categorizing responses).

Estimates in this analysis may have under-estimated SAMS by excluding patients with statin hypersensitivity, as four studies[22,86,89,94] (n=48,950) employed statin “washout” phases and eight trials[27,37,38,75,76,81,83,85,86] (n=34,042) excluded patients with known statin hypersensitivity. Collins et al. noted that “statin hypersensitivity” exclusion was a rare occurrence across these trials, as almost all patients enrolled were statin-naïve at screening.[9] The risk of attrition due to SAMS and rhabdomyolysis was actually highest in SEARCH, where an eight week long, active run-in phase was conducted,[9,20] although no patients were excluded for elevated muscle enzymes.[20] Also, an N-of-1 trial in patients who were considering stopping or who had stopped statin therapy because of muscle symptoms found no difference in severity of patient-reported muscle symptoms between

statin and placebo groups.[104] Because simvastatin 80 mg trials comprise a high proportion of high intensity treatment evidence, this may limit interpretation of CK and rhabdomyolysis risk. Also, adverse events may have been increased due to the presence of co-morbidities; only three trials studied healthy adults (n=30,756).[7,77,86] A final limitation is that although risk estimates are based on the best available evidence and should provide relatively unbiased estimates, confidence intervals and alpha significance levels may be approximate due to multiple comparisons.

CONCLUSION

Statins likely cause SAMS, but at much lower rates than observational data suggest. We found significant, but small increases in risk for patient-reported muscle problems on high-intensity statins. Complaints of SAMS in observational studies may be related to statin therapy or patient expectations, but more likely may be due to methodological biases or the generally high prevalence of muscle problems.

Table 1: Description of the Trials

Trial Name	Total sample size	Special Population	Permit Prior statin†	Ave age	Run-in Period	Median Yrs F/U
Placebo-Moderate						
4D, A20[75]	1,255	DM II, ESRD	Y, -HS	66	Placebo	4.0
4S, S20-S40[76]	4,444	MI or angina	Y, -HS	59	Placebo	5.4
AFCAPS, L20-L40[77]	6,605	Healthy adults	N	58	Placebo+diet	5.2
ALERT, F40-F80[78]	2,094	Renal Trans	N	50	None	5.4
ASCOT, A10[79,80]	10,810	HTN+CVD risk	N	63	Not statin	3.3
ASPEN, A10[81]	2,410	DM II	Y, -HS	61	Placebo	4.0
AURORA, R10[82]	2,767	ESRD	N	64	Placebo	3.2
CARDS, A10[83,84]	2,838	DM II	Y, -HS	62	Placebo	4.0
CARE, P40[85]	4,159	MI	Y, -HS	59	Placebo	5.0
CORONA, R10[38]	5,011	ESRD	Y, -HS	73	Placebo	2.7
GISSI-HF, R10[37]	4,574	CHF	Y, -HS	68	None	3.9
HOPE-3, R10[86]	6,349	Healthy, CVD Risk	Y, -HS	66	Statin	5.6
LIPID, P40[87]	9,014	MI or angina	Y	62*	Placebo+diet	6.0 (*mean*)
LIPS, F80[88]	1,640	Coronary percut. intervention	Y	60	None	3.9
MRC/BHF (HPS), S40[89,90]	20,536	CHD/CHD Risk	N	64	Placebo, then statin	5 (*mean*)
PROSPER, P40[91]	5,804	Elderly, CHD risk	Y	75	Placebo	3.2 (*mean*)
WOSCOPS, P40[92,93]	6,604	Healthy males	Y	55	None	4.9 (*mean*)
Placebo-High						
JUPITER, R20[7]	17,802	Healthy adults	N	66	Placebo	1.9††
SPARCL, A80[94]	4,731	CVA/TIA	Y	63	None	4.9
TRACE, A40[27]	3,002	RA	N, -HS	61	None	2.5
Moderate-High						
A to Z, S40-S80 vs 0-S20[21]	4,497	Acute Coronary Syndrome	N	61	None	1.98
PROVE-IT, A80 vs P40[23]	4,162	Acute Coronary Syndrome	Y, if <80mg	58	None	2.0 (mean)

SEARCH, S80 vs S20[20]	12,064	MI	Y	64	Statin+ Placebo	6.7
TNT, A80 vs A10[22]	10,001	CHD	Y	61	Statin	4.9

*Median

†Y=Yes, N=No, -HS=statin hypersensitivity exclusion

†† Trial was designed for two years of follow-up, but met study end points and terminated the blinded portion of the study earlier.

Table 2: Relative Risk and Risk Difference Results for Comparisons of Treatment Intensity Pairs.

						Placebo – Moderate Intensity
CK> 10xULN	**Rhabdo.**	**Attrition**	**Myalgia**	**Any Probs**	**Outcome**	
1.143 (0.686,1.905)	1.225 (0.624,2.405)	1.127 (0.931,1.364)	1.090 (.9997,1.188)	1.010 (0.988,1.033)	RR (95% CI)	
-0.000 (-0.001,0.001)	-0.000 (-0.001,0.001)	0.001 (-000,0.001)	0.001 (-0.000,0.001)	0.000 (-0.001,0.001)	RD (95% CI)	
--	--	--	--	--	NNH	
4.594 (2.320,9.098)	1.326 (0.487,3.614)	1.372 (1.091,1.726)	1.041 (1.001,1.083)	1.039 (1.004,1.075)	RR (95% CI)	
						Moderate – High Intensity
0.002 (0.001, 0.003)	0.002 (0.001,0.003)	0.005 (0.002, 0.007)	0.006 (0.001, 0.010)	0.004 (-0.000,0.008)	RD (95% CI)	
527	--	218	173	--	NNH	
						Placebo – High Intensity
5.252 (2.293,12.028)	1.624 (0.579,4.553)	1.155 (1.147,2.084)	1.134 (1.046,1.230)	1.049 (1.010,1.089)	RR (95% CI)	
0.002 (0.000, 0.003)	0.002 (0.000, 0.003)	0.005 (0.002, 0.008)	0.007 (0.002, 0.011)	0.004 (-0.001, 0.008)	RD (95% CI)	
589	--	187	182	--	NNH	

Figure 1: General Muscle Problems

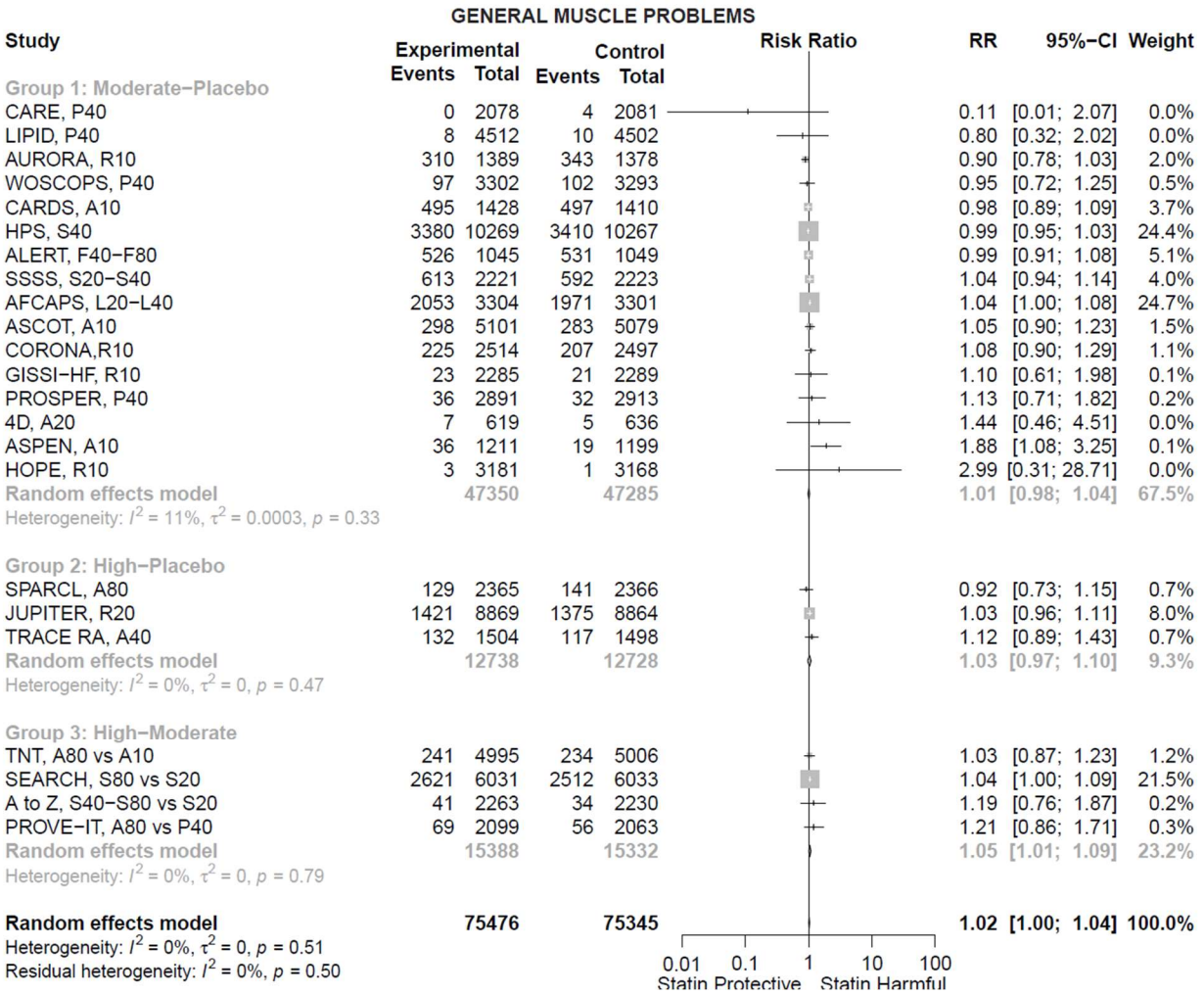


Figure 2: Myalgia

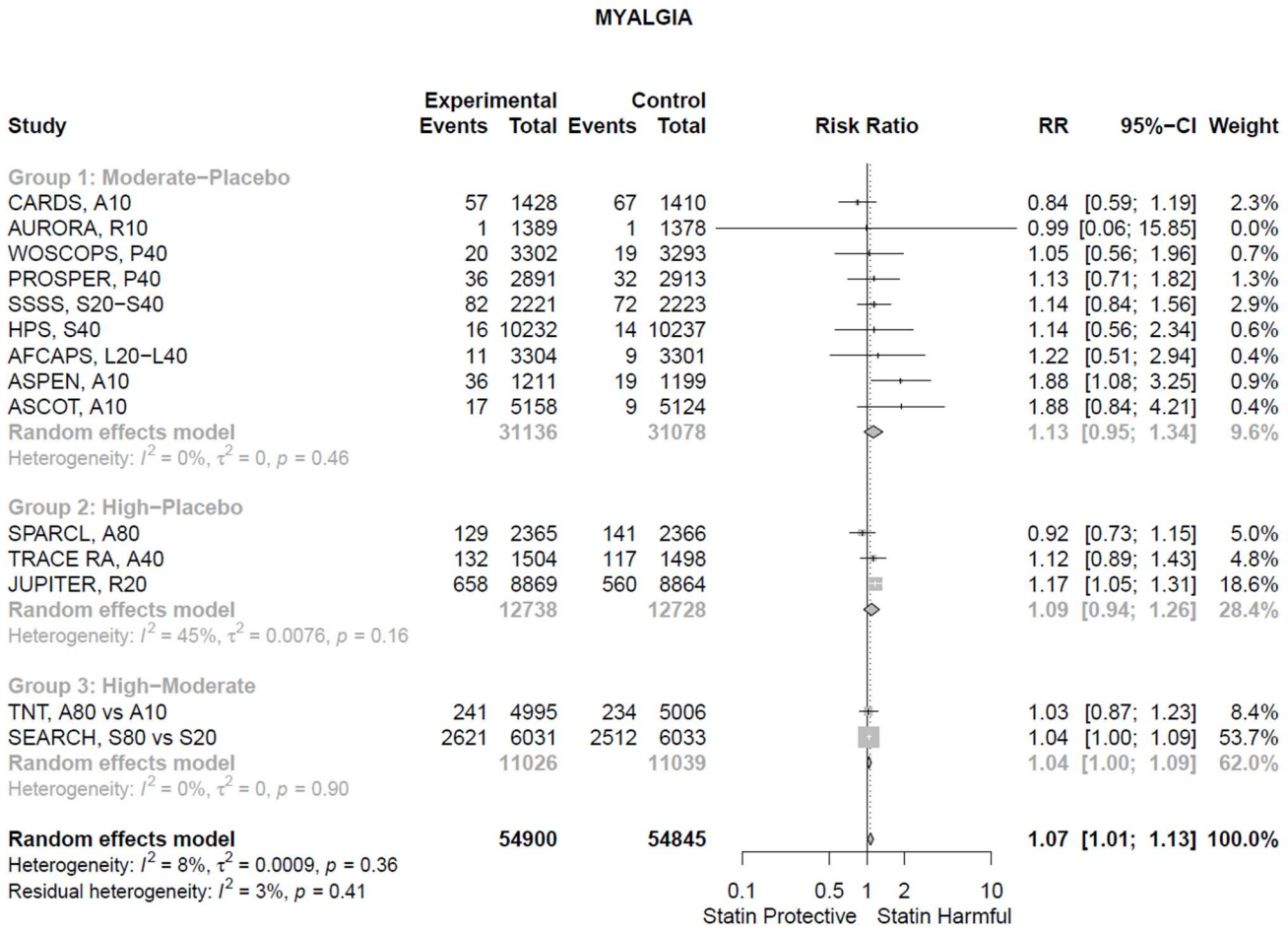


Figure 3: Attrition Due to Muscle Symptoms

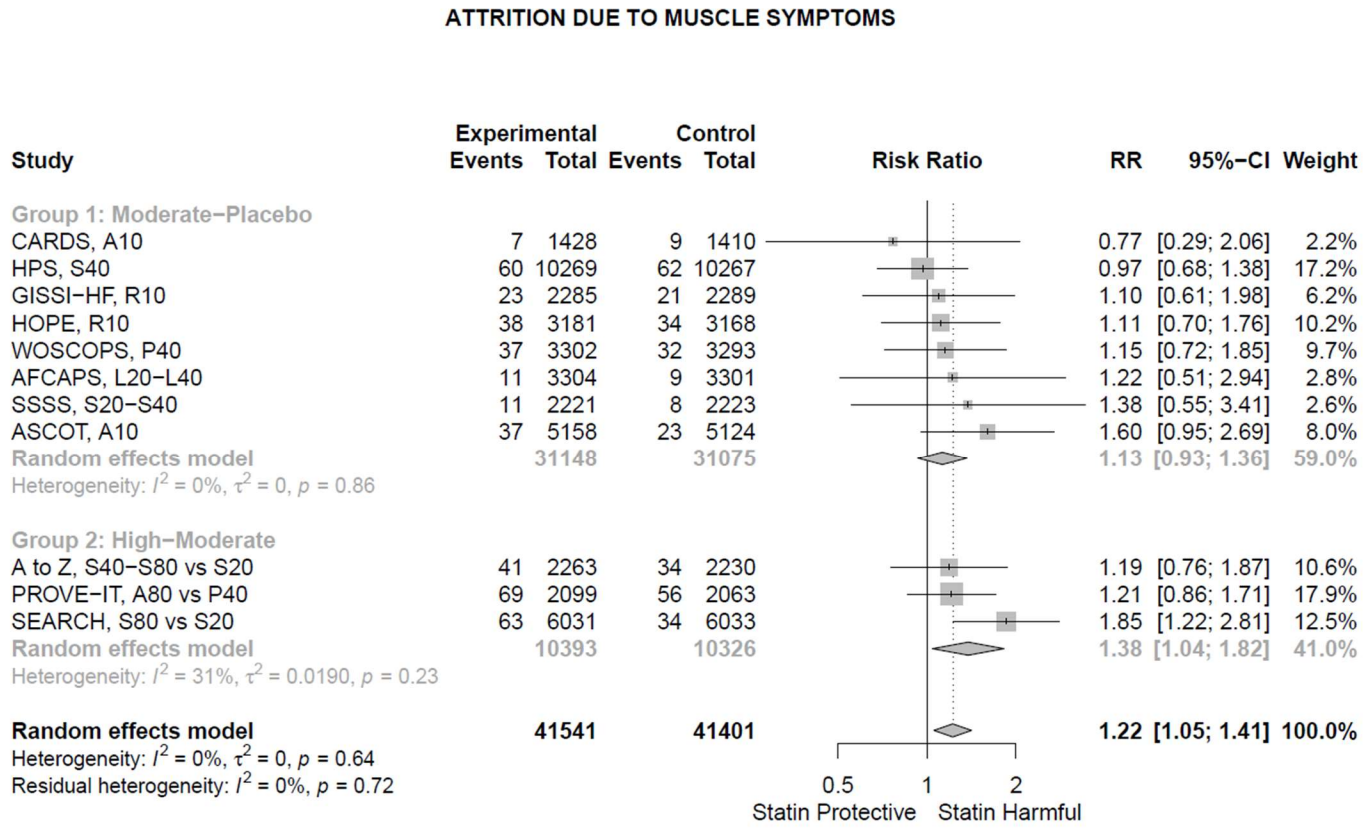


Figure 4: Rhabdomyolysis

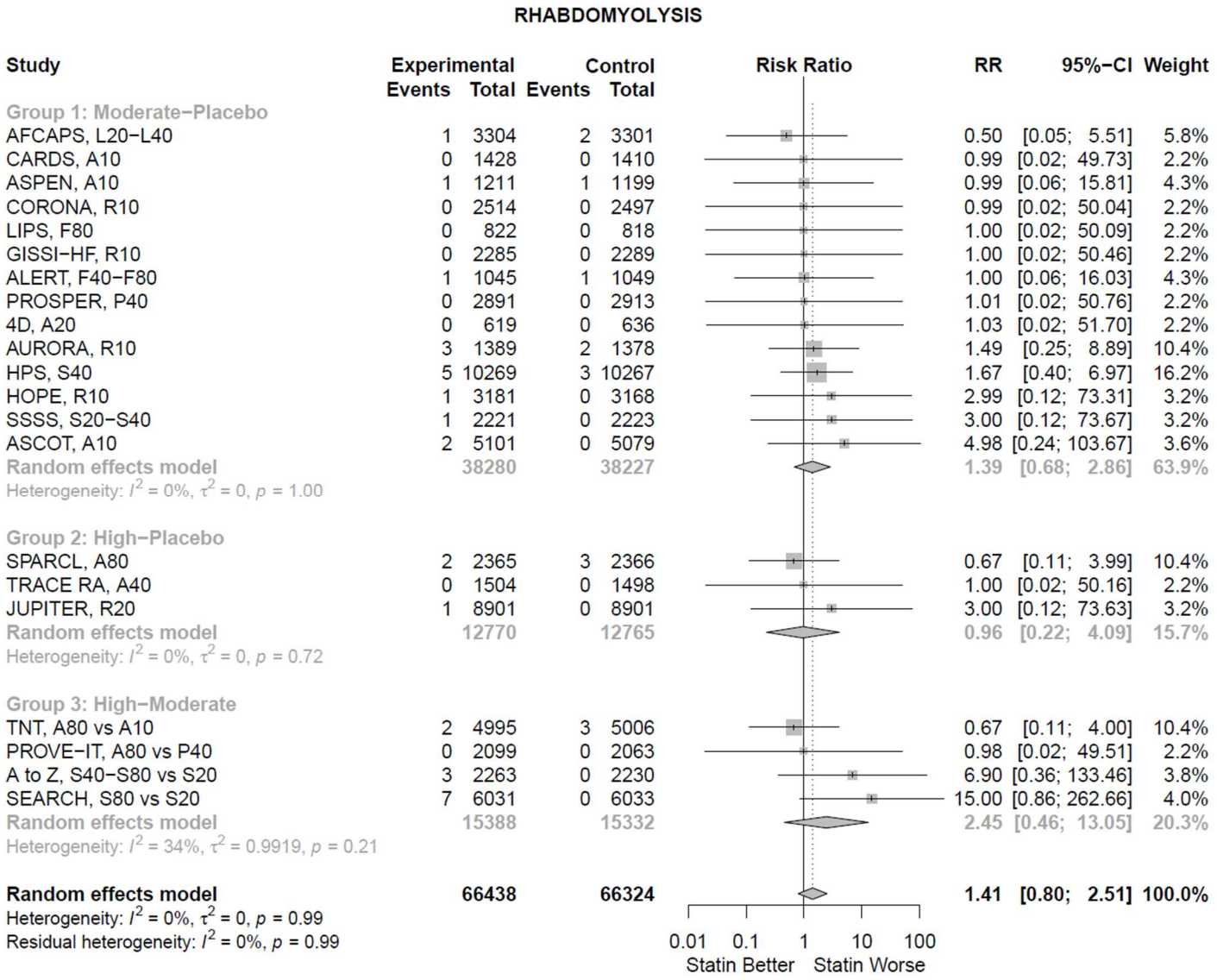
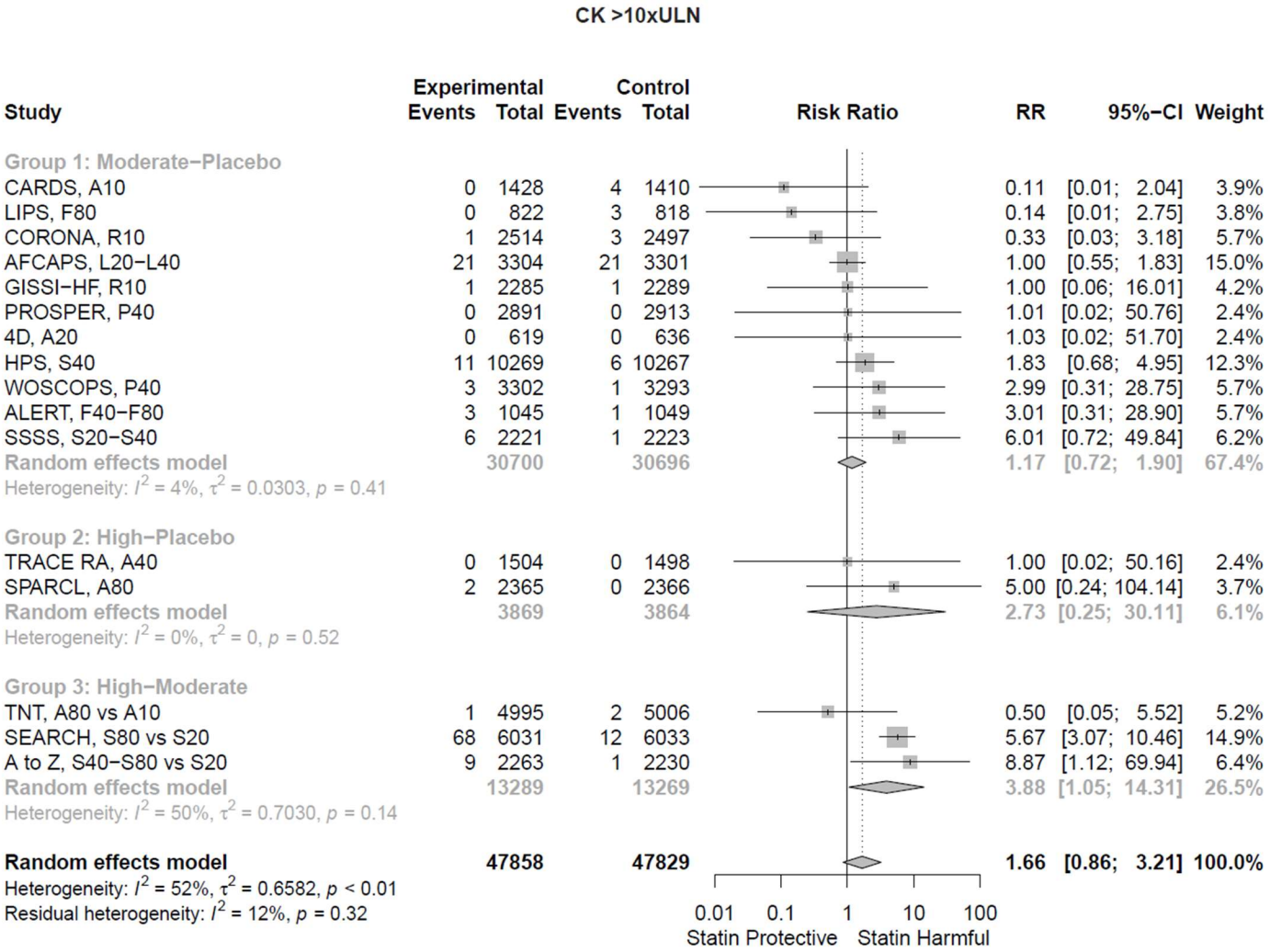


Figure 5: CK Greater Than 10x ULN



APPENDIX: SUPPLEMENTARY MATERIAL

The appendix and additional supplementary material, including relevant programming code, can be found online at:

https://bmjopen.bmj.com/content/11/6/e043714

https://datadryad.org/stash/dataset/doi:10.5061/dryad.kprr4xh2q

Chapter 3 Venous Thromboembolism and the Effects of Statin and Hormone Therapy: A Case-Control Study

INTRODUCTION

Many women suffer from post-menopausal symptoms, such as 'hot flashes', vaginal dryness, disruptions in sleep patterns, and inability to concentrate. The primary treatment for such symptoms is hormone therapy (HT). However, many are not prescribed HT because of possible risk of a venous thromboembolism (VTE), stroke, or myocardial infarction (MI). Although HT significantly reduces menopausal symptoms and helps to maintain bone health, clinical guidelines discourage use of HT due to possible increased risk for adverse cardiovascular events and long-term risk of breast cancer.[105,106] Clinical trials in post-menopausal women estimated that HT may double the risk for venous thromboembolism (VTE).[28,107] However, most of the trial participants initiated HT after 60 years of age, and these trials were conducted two decades ago with oral, conjugated equine estrogen (CEE), which has been shown to carry a different risk profile than other types and routes of estrogen administration.[60] Evidence suggests that vascular risk may be lower when initiation is nearer menopause.[30,55] Observational studies have suggested significant differences in severity of HT risk by type of hormone exposure and route of administration.[30,60,108,109]

Furthermore, in the decades since HT trials were conducted, evidence has accumulated on the efficacy of statin therapy to reduce risk for venous thromboembolic events.[26] Meta-analysis of RCTs and observational studies

suggest that current exposure, versus past or no exposure to statins, may reduce VTE odds by 25% (OR=0.75, 95% CI: 0.65, 0.87; 13 cohorts, 3.2M patients).[26] RCT evidence demonstrates lesser reductions in risk (RR=0.85, 95% CI: 0.73, 0.99; 23 RCTs, n=118,464 patients) when compared to placebo.[26] However, evidence exists that this effect may be accentuated by intensity of therapy.[3,26,110,111]

There is, however, minimal evidence on statin effectiveness in reducing VTE in the context of HT. One source of evidence about the possible effects of combined HT and statins originates from a nested case-control of UK women from 1987-2008.[35] Using the UK's Clinical Practice Research Database (CPRD), a sample of approximately 6 million women, they matched 23,000 cases of VTE date of event, subject age (+/- two years) and general practice location to controls (up to 10:1 match, n=23,505 cases, 231,562 controls). After adjustment for "body mass index, smoking status, history of varicose veins treatment, inherited thrombophilia and screening for thrombophilia, antiphospholipid syndrome (Hughes' syndrome), immobilization, invasive surgical operation, trauma and fracture (on the month before index date), myeloproliferative disorders, cancer (on the year before index date), inflammatory bowel disease, nephrotic syndrome, hypertension, cardiovascular and cerebrovascular diseases, and use of tamoxifen and nonsteroidal anti-inflammatory drugs", they found a 52% increase (OR=1.52, p-interaction=0.06) in odds of VTE in women 50-79 years old taking any current HT (last 30 days) compared to no exposure in the past year when statin-unexposed. The odds decreased to 21% in statin-exposed women taking HT. Consistent with

other studies,[60,112] odds of VTE were not different among women taking oral estrogen, oral progestogen, or oral estrogen and progestogen combinations when compared to one another. Thus, while it is not clear whether an interactive effect between HT and statins exist, there is evidence that statins may reduce some of the excess risk of VTE associated with HT.

It is important to validate this study in today's US population, which has a different comorbidity profile[113] and HT formulary than European countries. The number of VTE cases in the UK ranged from 150-175 cases per 100,000 person-years (2017-2019);[46,114] however, rates in the US were approximately 28% higher at 215 definite cases (ICD-9 or ICD-10 code with subsequent hospitalization, anticoagulant, or death) per 100,000 person-years (2015-2019).[33] Further, women in the CPRD sample were older (age range 50-79). Because older age is associated with VTE, this limits use of this evidence in younger women at lower risk of VTE. Relevant CPRD studies[35,60,61] also included both "definite" and "probable" cases of VTE, which may limit interpretation of their findings.

This project is a case-control study that examined the association between concomitant statin and HT exposure with VTE in a large health administrative database (OPTUM). Cases of VTE were selected using ICD codes and matched to controls who never experienced VTE. Exposure criteria was defined by known prescriptions for ***estrogen or progestogen***, either in combination or separately. All covariates were defined by ICD codes and controls were individually matched by age (+/- two years) and index date to maximize sample sizes for statin and HT usage. The sample was limited to women 50 up to (but not including) 65 years of

age: the lower bound age, 50 years, was chosen based on the average age at menopause;[57] the upper bound was chosen based on the age at which most people transition to Medicare, which limits claim accuracy.

METHODS

DATA SOURCE

This was a case-control study within Optum's de-identified Clinformatics® Data Mart database. It contains claims for approximately 62 million unique enrollees from 2008-2019.[58] Excluding Medicare Advantage subscribers, there are approximately 15 million annual members, a third of whom have continuous enrollment for three or more years. Because VTE incidence is low (about 217 cases in 100,000 person-years when using confirmatory case criteria)[33], OPTUM is one of the few databases containing a sufficient sample size for the target age range.

Disadvantages of this data source include false negatives (those who receive but do not fill prescriptions for anticoagulants) and false positives (claims for ICD diagnostic codes that are ultimately inconsistent with patient's condition). While numerous studies have assessed validity of venous thromboembolism code presence (or lack thereof) for venous thromboembolism events,[115–117] positive predictive values vary by country but are improved with use of "confirmatory events" such as anticoagulant prescriptions following discharge.[118] Thus, while no measures can realistically be taken to mitigate false negative risk in a claims database, false positives can be minimized by coding for VTE as the

corresponding diagnostic code plus a subsequent prescription for an anticoagulant. Another disadvantage to OPTUM is the limited time range for each individual. In contrast to National Health Care systems, as of 2015, just half of patients enrolled with OPTUM have two years of continuous coverage (30.6 million out of 63.1 million).[58,119] However, approximately 75% (46.0 million out of 63.1 million) have continuous pharmacy and medical claims data for 12 or more months.[119]

Finally, this dataset is limited to only information relevant to insurance claims. Therefore, social determinants of health measures (i.e., race/ethnicity) are not included, while important risk factors like smoking status and obesity are limited by detection bias (i.e., likely some light smokers are classified as unexposed).

COHORT SELECTION

Women from 50 years of age and up to (but not including) 65 years of age at date of index who were enrolled within 2007-2019 were eligible for inclusion if they had at least one year of continuous enrollment. Cases were defined as women with a diagnostic code for VTE (DVT, ICD-9: 451.1x, 451.2x, 451.81, 451.9x, 453.4x; ICD-10: I80.1x, I80.2x, I80.3, I80.9, I82.4xx, I82.90; PE, ICD-9: 415.1x, ICD-10: I26.0x, I26.9x) during the observation period followed by one or more prescriptions for an anti-coagulant (heparin, warfarin, apixaban, but excluding heparin flushes; listed in **Appendix Table A**), intravascular vena cava filter (identified by CPT codes 7191, 37192, 37193, 37620, 35940, 36010, or 36011-36012), or death within 30 days of the VTE diagnosis. Combining the

diagnostic claims codes with anticoagulant prescription claims have been previously demonstrated to increase the likelihood that the reported VTE occurred (increases positive predictive value).[120] Date of VTE diagnosis was the index date, and anyone who had less than 12 months of previous enrollment data before this date was excluded. Women who had a probable VTE (acute or chronic diagnosis) within one year prior to the index date were excluded from study. Women with an IVC filter placement in the past 12 months prior to index, or exposed to an anticoagulant within the 14 days prior to event (that is, anyone with a prescription for an anticoagulant during that period) were also excluded. Controls were randomly selected for the match to cases by month of index date and age within +/- two years at a 10:1 ratio. Controls, likewise, were excluded with less than 12 months of enrollment prior to index, history of prior, acute VTE in the one year lookback, history of anticoagulant or IVC placement within the 14 days prior to index date, or any chronic VTE (either DVT or PE) diagnosis.

We used a 'loose', individual match (very few covariates matched) for several reasons. First, doing so allows for better generalization to the US population.[121,122] Over-matching can preclude the estimation of a covariate's impact on event odds,[122] may decrease external validity,[122] and may bias parameter estimates towards the null.[121] Matching or excluding by other important covariates, such as hospitalization or cancer (two strong risk factors for VTE), is thus only warranted where there is concern for extreme variance in prevalence within the exposure of interest.[121] Since it is not known whether this is the case,

these factors were carried as covariates and were subjected to sensitivity analyses excluding cases and controls with those conditions.

EXPOSURE

HT exposure was defined by type of hormone and route of administration. There were four types of hormone exposure categories: (1) unopposed estrogen, (2) estrogen with progestogen, (3) progestogen alone, and (4) estrogen with testosterone (with or without a progestogen). Four routes of administration were considered: (1) oral, (2) transdermal, (3) vaginal, and (4) intramuscular. If women were exposed to transdermal estrogen with an oral progestogen, they were classified as exposed to both estrogen and progestogen and classified by the route of estrogen. If women were exposed to transdermal and oral estrogen with overlapping prescriptions, they were classified as oral exposure. We evaluated timing of HT exposure by assessing several possible exposure definitions for HT, based on event index date: (1) 0-30 days since index date, (2) 31- 60 days, (3) 61-90 days, (4) 91-365 days, and (5) no exposure in the last year. The Strengthening of Reporting in Observational studies in Epidemiology (STROBE) guidelines directed our exposure selection strategy.[123] National Drug Codes (NDCs) for HT exposure were identified using Red Book[124] and/or from a list supplied by the Food and Drug Administration,[125] and are found in the **Appendix, Table A**.

Statin exposure was defined by duration of therapy, given that most RCT and cohort evidence demonstrated VTE reductions with continuous exposure to statin therapy after one year.[3,35,126] Duration of therapy was defined in six

categories: 1) 90 days of continuous prescriptions prior to index date *plus* at least one prescription from 91-365 days prior to index date, 2) 90 days of continuous prescriptions prior to index date *without* any prescriptions from 91-365 days prior to index date, 3) 60 total days of prescriptions in the 90 days prior to index date, 4) 30 total days of prescriptions in the 90 days prior to index date, 5) only prescriptions in the 91-365 days prior to index date with no exposure (past exposure only), and 6) no exposure in the past year. Intensity of therapy during most recent 30 days prior to event index was considered as: 1) high, 2) low or moderate, or 3) none. AHA guidelines[127] defined high intensity as Atorvastatin $\geq$40mg/d or Rosuvastatin $\geq$20mg/d. Statins (Hydroxymethylglutaryl-CoA Reductase Inhibitors) include: atorvastatin (Lipitor), cerivastatin (Baycol), Fluvastatin (Fluindostatin, Lescol), lovastatin (Altocor, Mevinolin, Mevacor), pitavastatin (Livalo, Zypitamag, Nikita), pravastatin (Pravachol, Lipostat), rosuvastatin (Crestor), simvastatin (Zocor), baycol, mevastatin (Compactin), and combination drugs. National Drug Codes (NDCs) from Red Book[124] were used to identify formulations to assist in classifying exposure by intensity of statin therapy. NDCs are listed in **Appendix Table A**.

STATISTICAL ANALYSIS

In order to assess whether statins and/or HT were associated with VTE in this dataset, main and interactive effects of each exposure were estimated using crude and adjusted odds ratios (ORs) with 95% confidence intervals. While loose match data may be analyzed with unconditional regression,[59] we opted to utilize

conditional logistic regression for main analyses, consistent with previous studies.[35,60,112] Covariates were coded as present or absent based on ICD-9 and/or ICD-10 codes within one year from events/index date (and no less than one day prior), unless otherwise specified below. Region, age, history of any cancer (except non-melanoma skin cancer, as identified in Elixhauser set[128,129]), history of hospitalization (30-day history from index) or surgery (30-day history from index), history of prothrombotic condition or history of thrombosis (ICD-9: 289.81,298.82, 270.4, 238.4, 286.x, 287.1, 287.3-287.5, 289.84, 289.94, 451.83, 451.84, 451.89, 325.0, 437.6, 453.0, 452.x, 453.x; ICD-10: D68.5 - D68.6, D53.0, E72.11, D65-D68.x, D69.1, D69.3-D69.6, D75.82, I82.x, I80.8, I63.6, G08, I67.6, I63.6, I82.0, I81, I82.2, I82.3, I82.8, I82.9) fracture (30-day history from index; ICD-9: 800 – 829; ICD-10: S00-S99) or trauma (30-day history from index; ICD-9: 830 – 939, 950-959; ICD-10: T07, T14-T19), smoking (ICD-9: v15.82, 305.1, 649.x, 989.84; ICD-10: Z72.0, Z87.891, F17.x, O99.33x, T65.2x, Z71.6), and varicose veins (ICD-9: 454.x; ICD-10: I86.8) were included as risk factors for consideration.[113,130–132] Further, cardiovascular disease risk factors likely to be HT contraindications were assessed. Coronary artery disease (ICD-9: 410.x, 411.x, 412.x, 413.x, 414.x, 429.2, 429.7x, 429.8, 429.9; ICD-10: I20.x, I21.x, I22.x, I23.x, I24.x, I25.x, Z98.61, Z95.1, Z95.5) and stroke (ICD-9: 433, 434, 435, 436; ICD-10: I63.x, I64, I65, I66, I69.3, I69.4 G45, G46) were examined as possible covariates. Lipid disorders (ICD-9: 272.0-272.4; ICD-10: E78.0-E78.5) were also included, given they are highly associated with statin therapy. Finally, the Elixhauser set of 31 comorbidities (after extracting conditions known to be highly associated with

VTE) was employed as a marker for general health status.[128,129,133] This list contains important, chronic conditions such as congestive heart failure, obesity, liver disease, and more. The Elixhauser comorbidity list has been validated for predicting risk of serious illness and hospitalization.[134] In turn, use of the Elixhauser list aids in control for diseases likely to be associated with outcomes like VTE. The full list of comorbidities is demonstrated in **Appendix Table B**.

Some adjustments were made to the Elixhauser set to maximize its use for this study. Rather than utilize all 31 comorbidities in a single score, some conditions were extracted prior to analysis. Because cancer diagnoses — lymphoma and general cancer diagnoses, including metastatic and non-metastatic codes — and hypercoagulability diagnoses are contained in Elixhauser and are known to be strong VTE risk factors, these were retained separately. Cancer was considered as one, nominal variable prior to analysis: no cancer (0), cancer without metastasis (1), or metastatic cancer (2). Additionally, several analyses explored possible reductions in the Elixhauser set in order to minimize the number of variables (and thus small cell sizes) when attempting to control for health status in multivariable models.

The combined effect of statin therapy and HT was of chief interest in this study. In order to assess whether statin therapy might mitigate the excess VTE odds from HT, models were constructed for testing 1) the main effect of HT, 2) the main effect of statins, and 3) both the main and interactive effects of HT and statins (replicating Fournier et al.).[35]

RESULTS

Sample Characteristics

There were 22.9 million women identified as having at least one year of continuous enrollment within the OPTUM database, of whom 74,600 (0.33%) had a first, acute VTE with 12 months of prior enrollment, and 22,380,610 were eligible controls (no acute VTE diagnoses from 2008-2019) for matching (see **Figure 1**). After criteria were applied, 27,490 cases remained (definite cases). Ultimately, 64% (20,359) of cases were PEs (with or without DVT), and 46% (n=9,364) were DVTs without a PE code. There was a 100% matching success rate for women in the control group (n=203,590), with controls matching exactly on index dates. Women were approximately distributed in thirds by age, with women aged 50-55 comprising 34.7% of the sample, 56-60 as 33.6% of the sample, and women 61-65 comprising 31.7% of the sample (see **Table 1**).

Elixhauser Comorbidities

In order to reduce the Elixhauser set of comorbidities, several analytic strategies were tried. First, a simple sum or count of all 27 comorbidities was tried. Of the 27 comorbidities, patients overall ranged from having 0-19 comorbidities from the Elixhauser comorbidity list with a mean 3.60 +/- 3.08 comorbidities for cases, and 1.55 +/- 1.90 for controls. Dividing the total score into terciles as 0 (35.18%), 1-2 (39.32%), and 3+ (25.49%) comorbidities indicated 55.94% of cases and 22.45% of controls had three or more comorbidities.

Second, I attempted to reduce the list prior to summing by considering all 27 comorbidities in a model predicting VTE (controlling for age and region).

Backwards selection using AIC reduction identified 20 comorbidities as significant ($p<0.0001$). Dropped comorbidities included HIV/AIDS, uncomplicated and complicated diabetes, hypothyroidism, complicated hypertension, drug abuse, alcohol abuse, and peptic ulcer disease. Women had a mean score of 1.35 +/- 1.73 using this condensed set of comorbidities: 48.39% of cases had 3+ comorbidities and 15.14% of controls had 3+ comorbidities.

Third, I attempted to reduce the set of comorbidities with principal components analysis. The Principal Components Analysis reduced the 27 comorbidities into six factors with eigenvalues greater than one, however the ratio of the first to second eigenvalue (see **Figure** 2, Scree Plot) suggested a single factor solution.

Since results from the second step indicated that several comorbidities could be dropped without loss of information and the third step indicated that the comorbidities could be represented with a single index, an index based on a simple sum of all comorbidities was chosen. However, the summed index divided into terciles was retained for use in further multivariable models assessing odds of VTE as it retained important information on participants' general health status while minimizing the number of cells.

VTE and Cardiovascular Risk Factor Assessment

After definition of an Elixhauser comorbidity index, I assessed whether other known risk factors (while adjusting for the Elixhauser score, region, and age) predicted VTE. Risk factors with low prevalence were combined where possible to

minimize small cell sizes. I collapsed coagulopathy conditions with other hypercoagulability diagnostic codes as one factor (prevalence 2.14%). Further, greater than 50% of surgeries included a hospitalization; therefore, hospitalization and surgery were also combined into a single factor (prevalence 4.83%).

Each known risk factor for VTE was associated with significantly increased odds of VTE for both crude and adjusted analyses (**Table 3**). In the multivariable analysis, women who had a prior hospitalization or surgery in the past year (OR=8.53, 95% CI: 8.10, 8.97), metastatic cancer (OR=12.99, 95% CI: 12.03, 14.03), or trauma (OR=3.52, 95% CI: 3.32, 3.73) were at highest odds of VTE in the adjusted models. The Elixhauser comorbidity score remained a significant predictor of VTE after controlling for all risk factors (OR=3.81, 95% CI: 3.61, 4.02 for women with 3+ comorbidities versus no comorbidities). While cases were matched to controls on age +/- two years, the tercile of age (50-55, 56-60, and 61-65) was still significantly associated with VTE. This was due to residual confounding, as age is known to be a strong risk factor for VTE. Adjusting for age as a continuous variable did not meaningfully change parameter estimates (see **Appendix Table C**), suggesting that a tercile approach was sufficient.

Any Hormone Exposure

I now aimed to assess odds of VTE with HT using all factors in **Table 2**. There were 2,130 (10.46%) cases exposed to any HT, and 17,428 (8.56%) controls exposed to any HT during the previous year(crude OR=1.25, 95% CI: 1.19, 1.31). The odds of VTE were not significantly different between those who

had past HT exposures (91-365 days; OR=0.94, 95% CI: 0.83, 1.06) or those exposed 61-90 days (OR=0.90, 95% CI: 0.68, 1.19) when compared to no exposure. However, there were increased odds of VTE among those who had either current (0-30 days; OR=1.53, 95% CI: 1.45, 1.62) or recent (31-60 days; OR=1.22, 95% CI: 0.99, 1.50) exposure (see **Table 3a** for all five categories). Odds of VTE were 26% significantly greater in women last exposed to HT 0-30 days when compared to exposures at 31-60 days (OR=1.26, 95% CI: 1.02, 1.56; **Table 3b**) and women who were exposed to HT from 31-60 days prior to index were at 35% increased odds of VTE compared to women last exposed 61-90 days prior to index (OR=1.35, 95% CI: 0.95, 1.91). Thus, because odds diminished within two months after discontinuation, we define current exposure as those exposed to HT within 0-60 days of the index date or who discontinued within two months of the index date. This category captures women at highest odds and inclusion of those who had discontinued within two months did not appreciably lower that risk. Women who had been exposed more remotely than 60 days were no different in VTE odds than unexposed women. Therefore, for further analyses, HT exposure was defined as within 60 days prior to index versus past/none. There were The 19,558 women exposed to any HT within 60 days prior to event were at 51% greater odds of VTE than women previously or never exposed to HT (OR=1.51, 95% CI: 1.43, 1.59; see **Table 4, Model 1**).

In order to assess types of HT and their routes of administration on odds of VTE, the route of administration was defined by the most recent route of estrogen administration, consistent with previous studies.[35,60] Although women exposed to

any HT had 51% significantly higher VTE odds compared to past/no use in the past year, odds were 33% significantly higher for women exposed to unopposed oral estrogen (OR=1.33, 95% CI: 1.22, 1.46) and 40% higher with estrogen-progestogen combination oral therapy (OR=1.40, 95% CI: 1.23, 1.58). Contraceptives (which contain both estrogen and progestogen) had an extremely high OR (OR=5.20, 95% CI: 4.65, 5.81; **Table 4, Model 2**). Progestogen-only regimens were associated with increased odds of VTE (OR=1.48, 95% CI: 1.24, 1.78). Estrogen-testosterone therapy (with or without progestogen), however, was associated with a significant, 51% reduction in odds of VTE (OR=0.49, 95% CI: 0.34, 0.71).

Statin Exposure

I now aimed to assess the main effect of statin therapy on VTE when controlling for all factors in Table 3. In the sample, 5,924 cases (25%) and 47,883 (24%) of controls filled at least one statin prescription. Of all those exposed, the majority (n=41,878) were exposed to statin therapy in the 30 days prior to event, but had also been continuously exposed to statins for greater than 90 days (n=36,238, 86% of all women exposed within the previous 30 days). Because women exposed to statins within the past 30 days predominately had been prescribed a statin for at least 90 days and RCT evidence was suggestive of a duration-dependent effect,[3] I analyzed statin exposure by duration of therapy rather than by recency.

Statin Exposure was defined by assessment of homogeneity of odds across different times and duration of therapy.[123] Patients who filled three prescriptions (90 days) of statin therapy plus exposure in the 91-365 days prior to index were at 11% lower odds of VTE than those who had never been exposed (OR=0.89, 95% CI: 0.85, 0.94; n=35,361, **Table 5a**). Those who had three prescriptions but no prior exposure to statins (n=877) were at non-significantly reduced odds of VTE than controls (OR=0.95, 95% CI: 0.74, 1.21), and women who only had past (91-365 days) exposure to statins were not different from unexposed women in VTE odds (OR=1.05, 95% CI: 0.96, 1.15; **Table 5a**). Women with two prescriptions in the last 90 days (OR=0.96, 95% CI: 0.87, 1.06) were not different from unexposed, whereas women with one prescription within the last 90 days (OR=1.15, 95% CI: 1.03, 1.30) were at increased odds of VTE when compared to unexposed women (**Table 5a**). Homogeneity testing between groups (**Table 5b**) indicated that adjacent groups were not significantly different from one another, with the exception of women who filled one prescription of statin therapy within 90 days of index. Women with one statin prescription within 90 days of index were not significantly different from women with exposure 91-365 days prior to index (OR=1.10, 95% CI: 0.96, 1.27), but women given two prescriptions for statin therapy within 90 days of index were at 17% lower odds of VTE than those given one prescription (OR=0.83, 95% CI: 0.72, 0.96). Women given three statin prescriptions in the 90 days prior to index were not at different odds than women receiving only two prescriptions within 90 days of index (OR=0.99, 95% CI: 0.76, 1.28) and those with only two prescriptions (OR=1.08, 95% CI: 0.97, 1.19) were

not different. Women with three prescriptions were at increased, but not different, odds of VTE than those with greater than three statin prescriptions in the past year (OR=1.06, 95% CI: 0.83, 1.36).

While those with two statin prescriptions within 90 days of index were apparently at lower odds of VTE than women with one statin prescription within 90 days of index, neither group was at different odds of VTE than non-exposed women. Further, some women were not currently exposed to statins within this group (i.e., prescribed statins 31-90 days prior to index date but did not have a prescription within 30 days of index). Thus, all women with less than 90 consecutive days of filled statin prescriptions prior to index were considered homogenous with no exposure, and women with 90 days or more exposure were considered exposed. Collapsing statin exposure to three prescriptions or more of continuous therapy was associated with 11% decreased odds of VTE (OR=0.89, 0.85, 0.94) when compared to unexposed. All others who were statin exposed remotely or for less duration did not have reductions in odds of VTE compared to unexposed.

Intensity of exposure was assessed to see whether there was a dose-dependent effect of statins on VTE odds reductions. Because intensity of therapy may have changed over time, the most recent exposure (last 30 days) among women exposed continuously for the past 90+ days was used for this analysis. Among those continuously exposed to statins within the previous 90+ days, there were 733 (19.72%) cases and 5645 (17.36%) controls taking high-intensity statins. Women taking low or moderate intensity statins in the 30 days prior to index date

were at 10% lower odds of VTE (OR=0.90, 95% CI: 0.86, 0.95) compared to women who had less or no exposure (**Table 4, Model 4**). Women taking high intensity statins, compared to those with less/no exposure were at 18% reduced odds of VTE (OR=0.82, 95% CI: 0.74, 0.90). Likewise, women taking low/moderate intensity statins were at 24% higher odds of VTE than those taking high-intensity statins (OR=1.24, 95% Ci: 0.86, 1.78).

HT and Statin Main and Interactive Effects

The final remaining analysis was to assess the main and interactive effects of HT and statins. First, a main effects model with HT and statins (when considered together and adjusted for risk factors; **Table 4, Model 5**) was constructed. Second, a model containing an interaction term (**Table 4, Model 6**) was constructed. To remain consistent for these analyses, HT was defined as any exposure within the previous 60 days prior to index and statin therapy was defined by duration of therapy (three or more 30-day statin prescriptions in the past year, including 90 continuous days of statin prescriptions prior to index date, versus less/no exposure). Women exposed to HT were at 51% increased odds of VTE when compared to currently unexposed women (OR=1.51, 95% CI: 1.43, 1.60) even when controlling for statin exposure. Likewise, statin exposure was associated with a 12% odds reduction (OR=0.88, 95% CI: 0.84, 0.93) when controlling for HT exposure. The interaction was not significant (OR=0.91, 95% CI: 0.77, 1.06, p-interaction=0.23; **Table 4, Model 6**).

There were multiple, pre-planned sub-analyses (see **Table 6**) performed to assess whether results were stable across sub-groups. The first sub-analysis focused on the subsample without cancer or hypercoagulability conditions. Cancer and hypercoagulability were associated with HT, statin therapy, and VTE, meeting criteria as possible confounders. Women without cancer or hypercoagulability diagnoses who were exposed to any HT were at 64% greater odds of VTE than HT-unexposed women (OR=1.64, 95% CI: 1.57, 1.70; **Table 6, Model 2**), somewhat higher than full sample estimates (**Table 6, Model 1**). Statin therapy's effect was approximately the same (OR=0.93, 95% CI: 0.87, 0.99; **Table 6, Model 2**) as in the full sample (**Table 6, Model 1**). The statin and HT interaction, however, was borderline after eliminating those with cancer or hypercoagulable conditions (OR=0.84, 95% CI: 0.68, 0.999, p-interaction=0.03).

A second sub-analysis assessed whether results differed among healthier women compared to women with a greater number of health complications. Stratifying women by the number of Elixhauser comorbidities (zero or one Elixhauser comorbidities versus two or more) indicated that women who had higher scores were less likely to be prescribed HT but more likely to be prescribed statins. Among women with comorbidity scores of zero to one (**Table 6, Model 3**), the odds of VTE with any HT exposure were 88% higher than past/no exposure (OR=1.88, 95% CI: 1.80, 1.97) and higher than in the full sample (**Table 6, Model 1**). Women with comorbidity scores of two or more who took any HT were at greater odds of VTE than past/unexposed women (OR=1.27, 95% CI: 1.22, 1.33; **Table 6, Model 4**) but lower than the full sample. Thus, while the effect of statins and the

possible interaction of statins and HT stayed stable across models (**Table 6, Models 1-4**), the effect of HT varied. Descriptive measures, however, showed that women who had fewer comorbidities (less than two) were much more likely to be prescribed contraceptives. Given that contraceptives were associated with the strongest odds of VTE, this likely accounts for the disparities across groups. When type of HT exposure is broken down by the Elixhauser score (< 2 versus ≥2), 75% of contraceptive users were in the healthier group and 25% were in the sicker group (see **Appendix Table D**).

Thus, the significance of an HT/statin interaction was questionable, and findings varied by sub-analysis group. To assess whether interactions might be meaningful by type of HT and statin exposure, and then by statin ***intensity***, a third sub-analysis was performed where women were categorized by their type (unopposed estrogen, estrogen and progestogen, contraceptive, or other) and route (oral versus other) of HT, and exposure to statins of varying intensity (discontinuous/none, low/moderate, or high). Because statin intensity may have varied over time, the most recent exposure (within the 30 days prior to index date) was used and women must have filled prescriptions for at least 90 consecutive days prior to index to be considered exposed. The reference group for these models are women with less/no statin exposure and no current HT exposure. First, we estimated the joint effects of any statin and any current HT when compared to less/no statin or HT (see **Table 7, Model 1**). While taking any statin was associated with lower odds of VTE when compared to women less exposed to statins and HT (OR=0.89, 95% CI: 0.85, 0.94), it was also associated with lower odds of VTE in

the presence of current HT exposure (OR=1.25, 95% : 1.10, 1.43). This was significantly different than women taking HT alone (OR=1.53, 95% CI: 1.44, 1.63). Then, we estimated the effects of statin therapy by type of HT type and with varying statin intensities. **Model 2** IN **Table 7** the effects of varying HT types in women less exposed (< 3 months continuous exposure prior to index) versus more exposed (≥3 months continuous exposure prior to index), respectively. Women who were less exposed to statins taking any HT currently were at 54% increased odds of VTE (OR=1.54, 95% CI: 1.45, 1.64; **Model 2a**), whereas women who were continuously exposed to statins and taking any current HT were at comparatively lower odds (OR=1.25, 95% CI: 1.10, 1.43; **Model 2b**). However, women continuously exposed to statins who were also taking unopposed estrogen (OR=1.38, 95% CI: 1.13, 1.69) or estrogen/progestogen (OR=1.54, 95% CI: 1.14, 2.09) were at ***higher*** odds of VTE than the women less exposed to statins (see **Table 7**, **Model 2b**). Odds of VTE with women continuously exposed to statins and currently exposed to contraceptive HT were at lower VTE odds (OR=3.77, 95% CI: 2.44, 5.84) compared to women with less statin exposure (OR=5.18, 95% CI: 4.62, 5.82).

Thus, findings were suggestive that statins may ***increase*** odds of VTE. To assess whether the effect might confounded by the intensity of statin therapy varying by type of HT, the analysis was repeated when assessing statin exposure by intensity. The referent for this analysis, likewise, was women who were less exposed to statins and were currently unexposed to HT. It was found that women taking higher ***intensities*** of statins in the 30 days prior to index were generally at

lower odds of VTE when compared to women who had less statin exposure, regardless of type of HT (see **Table 7, Model 3a**). Among women unexposed to any HT, high-intensity statin therapy was associated with a 17% ***reduction*** in VTE odds (OR=0.83, 95% CI: 0.75, 0.94). The women who were exposed to any current HT and were exposed to high intensity statins were at 4% increased odds of VTE (OR=1.04, 0.75, 1.46), and odds of VTE in women taking unopposed estrogen and high intensity statins were ***reduced*** by 15% (OR=0.85, 95% CI: 0.45, 1.45). Women taking estrogen and a progestogen and a high-intensity statin, were at 29% increased odds of VTE (OR=1.29, 95% CI: 0.58, 2.87). Because the sample exposed to contraceptive HT and high intensity statins was small (n=25), it precluded meaningful interpretation of this estimate.

Continuing with the dose-response analysis, I next assessed the differences in odds of VTE in women taking low/moderate intensity statins versus those taking high intensity statins (see **Table 7, Model 3b)**. Women who were exposed to statins only (no HT in the prior 60 days) were at 10% higher odds of VTE when exposed to low/moderate intensity statins when compared to those on high intensity statins (OR=1.10, 95% CI: 0.98, 1.22). Women who were exposed to any current HT and were taking low/moderate intensity statins were at 24% increased odds of VTE when compared to women taking any current HT and high intensity statins (OR=1.24, 95% CI: 0.86, 1.78). Likewise, women who were exposed to unopposed estrogen and low/moderate intensity statins were at 63% higher odds of VTE than those taking high intensity statins with unopposed estrogen (OR=1.63, 95% CI: 0.92, 2.89). Women taking estrogen and progestogen

combinations and low/moderate intensity statins were at 20% higher odds of VTE than those taking estrogen/progestogen combinations and high intensity statins (OR=1.19, 95% CI: 0.51, 2.80). As in the previous analysis, contraceptive HT and statin intensity could not be reliably assessed due to small cells. Women who were taking other forms of HT and taking low/moderate intensity statins were at lower odds of VTE than those taking other HT and high intensity statins (OR=0.87, 95% CI: 0.46, 1.66), but this analysis may be complicated by small cells and heterogenous effects of various HTs.

DISCUSSION

This is the first study in a US claims database that assess the odds of VTE in women of post-menopausal age, with or without exposure to HT and with statin exposures. As such, it provides insights into the risk profile of HT users, as they attempt to weigh the benefits of menopausal symptom relief against reported risks of VTE from large clinical trials[29,107] and cohort studies.[30,60] In this study of US women, aged from 50-64, we have identified significant associations between HT and VTE that confirm and expand on findings from similar European studies.[35,60,61,135]

The primary strength of the OPTUM dataset is in the volume of women enrolled. This allows for the study of effects even when exposures or outcomes may be rare. Women who were prescribed HT were more likely to have a VTE than those unexposed. However, this effect differed by type and route of administration, which is consistent with UK studies.[60,61] Women who took

contraceptives were at greatest odds for VTE, followed by progestogen-only, then estrogen/progestogen combinations and unopposed estrogen. Women exposed to testosterone therapy (in addition to estrogen therapy +/- progestogens) were at 51% less odds of VTE than controls, and future studies assess whether this effect is meaningful or is related to indication bias. Because there are no women on testosterone monotherapy in this sample, further exploration here is necessarily confounded by other HT.

To our knowledge, this is the first study to demonstrate the severity of the VTE association with contraceptive HT in older women. While studies have previously demonstrated this association in women who are younger,[136] the absolute rates of VTE in this population are low.[46] The absolute rate of VTE in women aged 50-65, in contrast, is very high. In a previous study, we demonstrated increasing VTE rates from 95.3 cases per 100,000 person-years in women 26-35 to 374.7 cases per 100,000 person-years in women 56-64.[46] That women taking contraceptive HT, then, are at over ***400% greater*** odds of VTE than controls, should greatly alarm clinicians. While more rigorous study designs are warranted for assessing the absolute risk of VTE with contraceptive HT, significant caution should be taken in continuing women on contraceptives into the sixth decade of life and beyond.

It is not clear, though, why women 50-64 are being regularly prescribed hormonal contraception in the first place. The American College of Obstetricians and Gynecology (ACOG) currently recommends that women be counseled on the individual risks and benefits of HT for them,[137] but only prior VTE and smoking are

considered significant contraindications. It seems likely that many women prescribed hormonal contraception in this study — if using it for perimenopausal relief — should have been transitioned to HT formulations indicated for such. Because suppression of ovulation is predominant in women taking contraceptive HT[138], its use precludes a diagnosis of menopause.[139] Clinicians evaluating use of contraceptive HT in women nearing menopausal age, in light of this study, should consider other forms of contraception (i.e., vasectomy), where appropriate. This is especially true where women have known risk factors for VTE.

While it was demonstrated that HT of any kind significantly increases odds of VTE, women who were prescribed statins for 90 days or more of continuously were at reduced odds of VTE – in the presence or absence of HT. There was not strong evidence for an interactive effect, as the effect of statin therapy did not appear to change with HT exposure. However, this study is highly suggestive that the effect of statin therapy is both dose- and duration-dependent. Women exposed to less than 90 continuous days of statin therapy prior to index date were not at significantly different odds of VTE compared to women who were completely unexposed to statin therapy. In the most common forms of menopausal HT — as seen with “Any current HT” exposure, unopposed estrogen therapy, and estrogen/progestogen combination therapy — there was an observed reduction in odds with higher intensity of statin therapy. The previous meta-analysis[26] of RCTs and observational studies assessed odds of VTE by dose of atorvastatin and rosuvastatin (defining “high intensity” as $\geq$20mg of either drug), but risk estimates

were not different across these groups. Future analyses will assess the association of statin therapy and VTE with increasing durations of exposure.

While the overall effect size is smaller than the estimates previously demonstrated in cohort and case-control studies (approximately a 25% reduction, on average),[26] our estimate resembles effect sizes generated from RCTs (meta-RR=0.85, 95% CI: 0.75, 0.99 in 23 RCTs of 118,000 patients). There are numerous explanations for the discrepancy between our study's findings and other observational studies. Foremostly, RCT evidence is suggestive that statins' effect on VTE becomes significant after approximately one year of exposure.[3] Women in these observational studies were routinely exposed to statins for greater than one year, and therefore may demonstrate a larger cumulative effect. It is also possible the women included in previous observational studies may be more adherent to their statin therapy, or that prescribing patterns of statin therapy in Europe differed meaningfully from the present study. Women globally are less likely to be prescribed statin therapy (or high-intensity statin therapy) than men when controlling for risk factors[140] and comorbidities.[141] In a meta-analysis of cohort studies and RCTs, approximately 53% of women who were prescribed statins were non-adherent, and that odds of non-adherence measured by self-report exceeded that of those by pharmacy claims.[142] Thus, it is likely some women in this study filled statin prescriptions but did not take them; the most likely group represented by this issue were women who had just one prescription within the 90 days prior to index. This may partially explain why these women were at higher odds of VTE than those who had filled two statin prescriptions in the 90 days before the index

date. We mitigated this risk of bias by requiring at least 90 days of statin prescriptions to be counted as exposed, as women repeatedly filling are less likely to be non-adherent. Because some of the women who filled one to two 30-day prescriptions were, at least, partially exposed to statins, this likely diluted the estimated effect of statins on VTE in this study. Future studies should categorize women as exposed (at least one year of continuous statin exposure), partially exposed (less than one year of continuous statin exposure), or unexposed (no exposure in the past year) to estimate the true effect.

The pre-planned sub-analyses — 1) excluding cancer/hypercoagulable patients, and 2) stratifying by Elixhauser scores — largely did not change interpretation. While point estimates for statin therapy and the statin-HT interaction by Elixhauser score were stable across the models (full sample and stratified analyses), the odds of VTE given HT exposure increased in healthier subsamples. The odds of VTE with HT were increased 53% in the general population (full sample) and were increased 64% in those who were without cancer and hypercoagulable conditions. Statin therapy effects remained stable when excluding these groups. Women who had greater numbers of comorbidities (at least two comorbidities within the Elixhauser score) were less likely to be prescribed HT than those with fewer comorbidities. Further, those who had greater comorbidities were less likely to receive contraceptive therapy, which are much higher in dose and thereby confer greater risk of VTE. While point estimates for statin therapy and the statin-HT interaction by Elixhauser score were stable across the models (full sample and stratified analyses), the odds of VTE given HT

exposure greatly differed across comorbidity scores. While controlling for Elixhauser scores mitigated bias from this effect, models should be interpreted with knowledge that the majority of excess odds increases may be attributed to the association between VTE and contraceptive HT.

Findings in this study are suggestive that statins may have an anti-thrombotic properties even when combined with HT exposure**.** While results were inconsistent as cells became smaller, higher intensities of statin exposure were associated with decreased odds of VTE. Given the excellent safety profile and price of statin therapy,[44,143] it seems prudent to consider prescribing high-intensity statins liberally in the setting of HT. While we did not find strong evidence for interactive effects of HT and statins, it appears clear that statins have, at least, a subtractive effect on VTE in the setting of HT. Whether this effect varies by type of HT must be further analyzed.

Limitations

There are several important limitations to this study. Most importantly, this study is a case-control design in an administrative claims database and contains all the inherent biases of a secondary, observational dataset. We attempt to limit selection bias in two ways in this study. First, we employed a strict case definition. Whereas others[35,60,61,112] utilized “probable” cases of VTE in their primary analyses, we only include cases that had 1) both an ICD-9 or ICD-10 code and 2) a confirmatory event, post-event (i.e., hospitalization, death, or anticoagulant prescription within 30 days of event). Probable cases would have comprised

approximately two-thirds of our cases, had they been included. While the positive predictive value of probable cases had been well-described in the CPRD database,[61] it is unclear how reliable this definition would be in a US claims database. While this decreased our available sample for analysis, it limits the likelihood that a person identified as a case in this study did not truly have a VTE, improving reliability of the effect estimates generated. Second, we limited persons with at least one year of claims data prior to the index date. This allowed for exclusion of those with prior VTEs or anticoagulants) that would alter the likelihood of becoming a case (in line with previous studies' methods[35,60,144]) and also increases the likelihood that important risk factors or comorbidities would be detected.[120]

Confounding by indication is an important consideration in claims data – patients who are prescribed HT may be more (or less) likely to be prescribed the drug based on their comorbidity profile, which in turn affects risk of VTE. Likewise, there may be competing indication biases with statin therapy (i.e., coronary artery disease is a contraindication for HT but an indication for statin therapy). While controlling for health status (via Elixhauser) as a covariate mitigates the majority of bias (whatever the source) that is introduced by this issue, matching or excluding by comorbidity diagnoses would help ensure that the effect of HT on VTE is better isolated. However, the purpose of this study was to evaluate HT on VTE in the 'real world' – excluding or matching by cancer would limit the external validity of the study to the US population. Sub-analyses excluding women with cancer or

hypercoagulable conditions did not change interpretation of findings, though VTE odds estimates for HT and statin therapy slightly changed.

CONCLUSION

This study provides strong evidence that, while HT is significantly associated with VTE, statins may reduce those odds – particularly in women taking contraceptive HT. A prospective cohort study of women taking both statins and HT may be warranted to elucidate the magnitude of excess risk for thromboembolism in this population. Statins, particularly high-intensity statins, may mitigate thromboembolic events in menopausal women and may represent a cost-effective, safe solution to providing HT to women for whom VTE risk is concerning.

Table 1. Case and Control Balance Characteristics.

Variable	VTE Cases (n=20,359)	Comparators (n=203,590)
Date VTE (index yr)		
2007-2010	24.32% (4951)	24.32% (49510)
2011-2014	33.14% (6747)	33.14% (67470)
2015-2019	42.54% (8661)	42.54% (86610)
Age		
50-55	33.35% (6789)	34.84% (70927)
55-60	34.80% (7084)	33.52% (68237)
61-65	31.86% (6486)	31.64% (64426)
Region		
Northeast	8.28% (1686)	8.85% (18010)
Midwest	27.81% (5661)	25.55% (52021)
South	43.77% (8912)	44.77% (91138)
West	19.98% (4067)	20.11% (40947)
Unknown	0.16% (33)	0.72% (1474)
PE (+/- DVT)	54.01% (10995)	--
DVT (NO PE)	45.99% (9364)	
Within 30d of VTE:		
Anticoagulant	89.37% (18194)	--
IVC filter	12.00% (2444)	
Died	5.88% (1197)	

Table 2. Elixhauser, Cardiovascular, and Thromboembolic Risk Factors on VTE

Variable	Crude OR (95% CI)	Adj. OR: VTE & CVD Risks* (95% CI)
Age		
50-55 (ref)	1	1
56-60	1.09 (1.05, 1.12)	1.31 (1.21, 1.42)
61-65	1.05 (1.02, 1.09)	1.32 (1.18, 1.47)
EH Comorbid		
None (ref)	1	1
1-2	2.03 (1.94, 2.13)	1.70 (1.62, 1.79)
3+	6.73 (6.45, 7.03)	3.81 (3.61, 4.02)
Cancer		
None (ref)	1	1
Non-metastatic	2.96 (2.82, 3.10)	2.01 (1.90, 2.14)
Metastatic	24.09 (22.62, 25.65)	12.99 (12.03, 14.03)
Hospital/Surg	18.44 (17.68,19.22)	8.53 (8.10, 8.97)
Trauma	5.80 (5.53, 6.07)	3.52 (3.32, 3.73)
Varicose Veins	3.17 (2.87, 3.49)	2.88 (2.57, 3.23)
Any hypercoag	9.73 (9.17, 10.32)	3.07 (2.83, 3.32)
CAD	3.09 (2.95, 3.23)	1.26 (1.19, 1.34)
Stroke	3.22 (3.04, 3.42)	1.18 (1.09, 1.28)
Lipid	1.44 (1.40, 1.48)	0.84 (0.81, 0.87)
Smoking	2.88 (2.78, 2.99)	1.28 (1.22, 1.34)

*Also adjusted for region.

Table 3a. Recency of HT Exposure.

Exposure	Cases (n=20359)	Controls (n=203590)	Adj. OR* (95% CI)	HT Exposure (Binary)**
None	87.09% (181167)	88.99% (17730)	1.0 (ref)	1.0 (ref)
0-30d	9.74% (1983)	7.99% (16276)	1.53 (1.45, 1.62)	(0-60) 1.51 (1.43,1.60)
31-60d	0.72% (147)	0.57% (1152)	1.22 (0.99, 1.50)	X
61-90d	0.38% (78)	0.39% (802)	0.90 (0.68, 1.19)	X
Past (91-365d)	2.07% (421)	2.06% (4193)	0.94 (0.83, 1.06)	X

*Reference category is no exposure in past year. Adjusted for age, comorbidity score, region, cancer, hospitalization/surgery, trauma, hypercoagulability, varicose veins, coronary artery disease, stroke, lipid disorders, or smoking history.
**Reference category is past or no HT exposure.

Table 3b. Between-Group Comparisons, HT Recency.

Exposure	Adj. OR* (95% CI)
0-30d v 31-60d	1.26 (1.02-1.56)
31-60d v 61-90d	1.35 (0.95, 1.91)
61-90d v 91-365d	0.96 (0.71, 1.30)

*Adjusted for age, comorbidity score, region, cancer, hospitalization/surgery, trauma, hypercoagulability, varicose veins, coronary artery disease, stroke, lipid disorders, or smoking history.

Table 4. Models Assessing HT, Statins: Main and Interactive Effects

VARIABLE*	N	Model 1 (Binary HT)	Model 2 (Expanded HT)	Model 3 Binary Statin	Model 4 Statin Intensity	Model 5 Main Effects, Statin and HT	Model 6 Main and Interactive Effects
Statin/HT Interaction	3208**						0.91 (0.77, 1.06)
Past/No HT in past year	204391	1.00 (ref)	1.00 (ref)			1.00 (ref)	
Any HT (0-60d)	**19558**	1.51 (1.43, 1.59)				1.51 (1.43, 1.60)	1.53 (1.47, 1.59)
Estrogen only	**9632**						
Oral	6638		1.33 (1.22, 1.46)				
Transdermal	2885		0.70 (0.59, 0.84)				
Vaginal	90		1.05 (0.44, 2.48)				
Est+Progest	**7655**						
Est+Progest HT	**5180**						
Oral	**3950**		1.40 (1.23, 1.58)				
Transdermal	**1255**						
Trans E w/ Oral P	833		0.68 (0.48, 0.95)				
Transdermal (EP)	379		0.84 (0.53, 1.34)				
Vaginal (FemRing+P)	17		0.58 (0.06, 5.49)				
Contraceptives (E +/- P)	**2475**		5.20 (4.65, 5.82)				
Est+Testost (+/-P)	**786**		0.49 (0.34, 0.71)				
Progest only	**1486**		1.48 (1.24, 1.78)				
Any IM (E or E+P)	**21**		0.39 (0.09, 1.77)				
Less/No Statin	187711			1.00 (ref)	1.00 (ref)	1.00 (ref)	
Statin (3+ Rx)	36238			0.89 (0.85, 0.93)		0.88 (0.84, 0.93)	0.89 (0.84, 0.94)
Low/Moderate	29860				0.90 (0.86, 0.95)		
High Intensity	6378				0.82 (0.74, 0.90)		

*Adjusted for age, comorbidity score, region, cancer, hospitalization/surgery, trauma, hypercoagulability, varicose veins, coronary artery disease, stroke, lipid disorders, or smoking history.
** Indicates number exposed to both statins and HT.

Table 5a. Statin Duration of Exposure on VTE

Full Model	Cases (n=20359)	Controls (n=203590)	Crude OR (95% CI)	Adj. OR (95% CI)*	Binary	Sample	Adj. OR (95% CI)*
None (ref)	70.90% (14435)	76.48% (155707)	1	1	**< 3 Rx (ref)**	187711	1
Past Use	4.50% (916)	3.19% (6489)	1.52 (1.42 1.64)	1.05 (0.96, 1.15)	**--**	--	--
1 Rx	2.74% (557)	1.67% (3395)	1.77 (1.62, 1.94)	1.15 (1.03, 1.30)	**--**		--
2 Rx	3.61% (734)	2.69% (5478)	1.45 (1.34, 1.56)	0.96 (0.87, 1.06)	**--**	--	--
3 Rx	0.51% (104)	0.38% (773)	1.45 (1.18, 1.78)	0.95 (0.74, 1.21)	**--**	--	--
3 Rx + Past Use	17.75% (3613)	15.59% (31748)	1.23 (1.18, 1.28)	0.89 (0.85, 0.94)	**3 Rx or More**	36238	0.89 (0.85, 0.93)

*All women who had prior exposure (>90d) to statins prior to event were coded as past. Women with no past exposure, but new prescriptions for statins within 90d prior to event are listed by number of months' Rx prescribed prior to event (maximum of 3, 30d prescriptions). Adjusted for age, comorbidity score, region, cancer, hospitalization/surgery, trauma, hypercoagulability, varicose veins, coronary artery disease, stroke, lipid disorders, or smoking history.

Table 5b. Between-Group Comparisons, Statin Duration

Exposure	Adj. OR* (95% CI)	Exposure	Adj. OR* (95% CI)
1 Rx vs Past	1.10 (0.96, 1.27)	**>3 Rx vs 3 Rx**	1.06 (0.83, 1.36)
2 Rx vs 1 Rx	0.83 (0.72, 0.96)	**>3 Rx vs 2 Rx**	1.08 (0.97, 1.19)
3 Rx vs 2 Rx	0.99 (0.76, 1.28)	**>3 Rx vs 1 Rx**	1.29 (1.15, 1.45)
>3 Rx vs 3 Rx	0.94 (0.74, 1.20)	**>3 Rx vs Past**	1.17 (1.07, 1.29)

*Indicates that model is adjusted for age, comorbidity score, region, cancer, hospitalization/surgery, trauma, hypercoagulability, varicose veins, coronary artery disease, stroke, lipid disorders, or smoking history.

Table 6. Pre-Planned Sub-Analysis by Predisposing Conditions and Elixhauser Score.

VARIABLE*	N	Model 1: Full Sample	Model 2: Cancer/Hypercoag Exclusion	Model 3: Stratified EH<2	Model 4: Stratified EH≥2
Case Count	20359	20359	13835	5850	14509
Control Count	203590	203590	190170	124217	79373
Past/No HT in past year	204391	1	1	1	1
Any HT (0-60d)	**19558**	1.53 (1.47, 1.59)	1.64 (1.57, 1.70)	1.88 (1.80, 1.97)	1.27 (1.22, 1.33)
≤3 mo /No Statin	187711	1	1	1	1
Statin (3mo+ Rx)	36238	0.89 (0.84, 0.94)	0.93 (0.87, 0.99)	0.89 (0.77, 1.01)	0.89 (0.84, 0.94)
Statin/Any HT Interaction	223949	0.91 (0.77, 1.06)	0.84 (0.68,1.00)	1.08 (0.81, 1.35)	0.97 (0.80, 1.14)

*Indicates that model is adjusted for age, comorbidity score, region, cancer, hospitalization/surgery, trauma, hypercoagulability, varicose veins, coronary artery disease, stroke, lipid disorders, or smoking history.

Table 7: HT and Statin Intensity.

Exposure	N (Total Sample)	Model 1: HT and ≥3 mo Any Statin*		Model 2: <3 mo Any Statin exposure (N=187711)	Model 2: ≥3 mo Any Statin exposure (N=36238)		Model 3a: ≥3 mo High Intensity Statin Exposure (N=6378)	Model 3b: ≥3 mo Low/Moderate Intensity Statins vs. High Intensity Statins
No HT, Less Statin (Ref)	171361	1						
Any HT Exposure Alone	16350	1.53 (1.44, 1.63)						
Statin Exposure Alone	33030	0.89 (0.85, 0.94)						
Any HT and Statin Exposure Jointly	3208	1.25 (1.10, 1.43)						
No current HT	171786			1	0.89 (0.85, 0.94)		0.81 (0.74, 0.90)	1.09 (0.98, 1.22)
Current HT Exposure, Any	15925			1.54 (1.45, 1.64)	1.25 (1.10, 1.43)		1.04 (0.75, 1.46)	1.24 (0.86, 1.78)
Unopposed Estrogen	5065			1.29 (1.16, 1.43)	1.38 (1.13, 1.69)		0.85 (0.49, 1.45)	1.63 (0.92, 2.89)
E+P	3253			1.38 (1.20, 1.58)	1.54 (1.14, 2.09)		1.29 (0.58, 2.87)	1.19 (0.51, 2.80)
*E+P Contraceptives***	2273			5.18 (4.62, 5.82)	3.77 (2.44, 5.84)		5.62 (1.96, 16.18)**	0.67 (0.21, 2.10)**
Other HT	5334			0.88 (0.78, 0.99)	0.68 (0.51, 0.90)		0.78 (0.44, 1.41)	0.87 (0.46, 1.66)

*Odds Ratios have been adjusted for age, comorbidity score, region, cancer, hospitalization/surgery, trauma, hypercoagulability, varicose veins, coronary artery disease, stroke, lipid disorders, and smoking history (except where noted as excluded).
**n=25 for women on both high intensity statins and E+P contraceptive; estimates cannot be reliably interpreted.

Figure 1. Flow Chart for Cohort Selection.

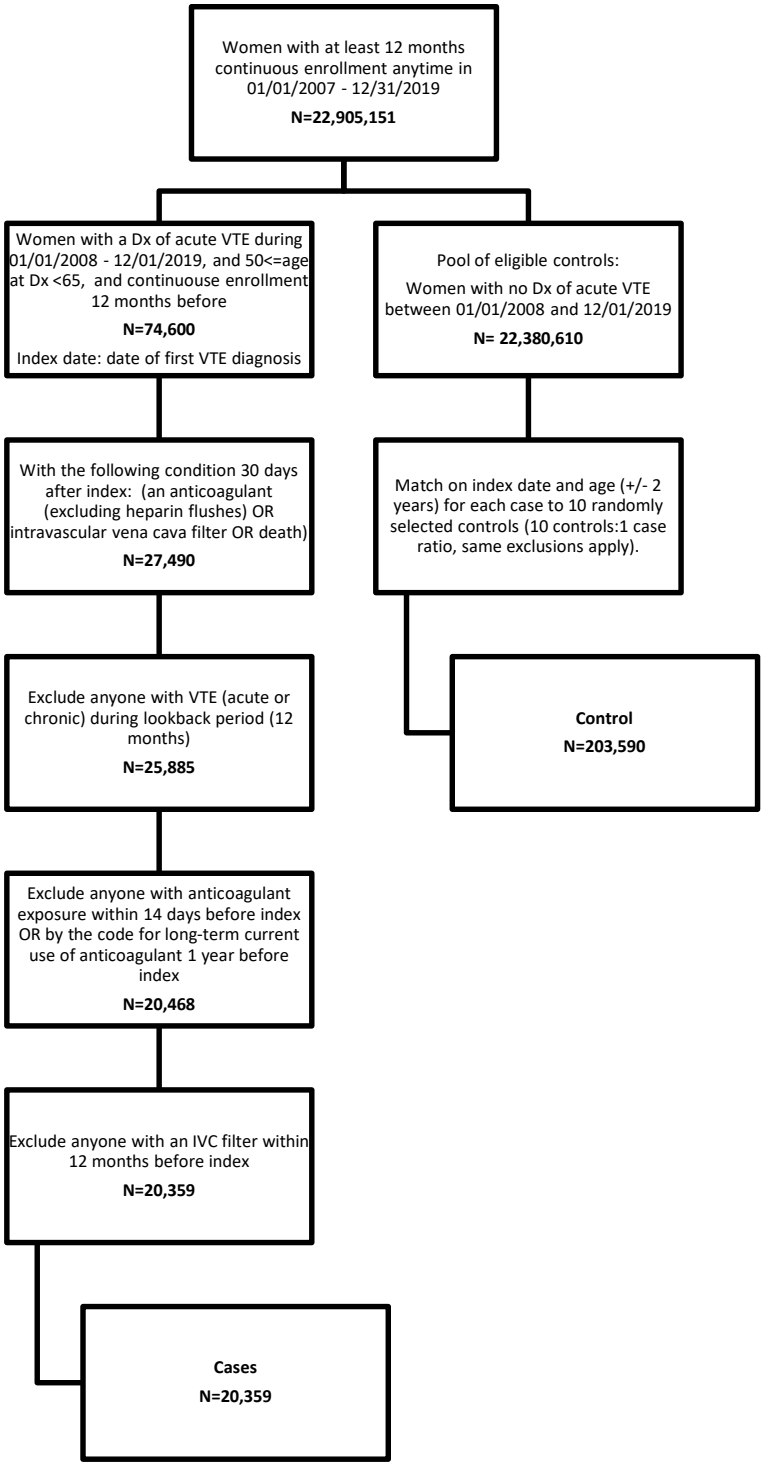
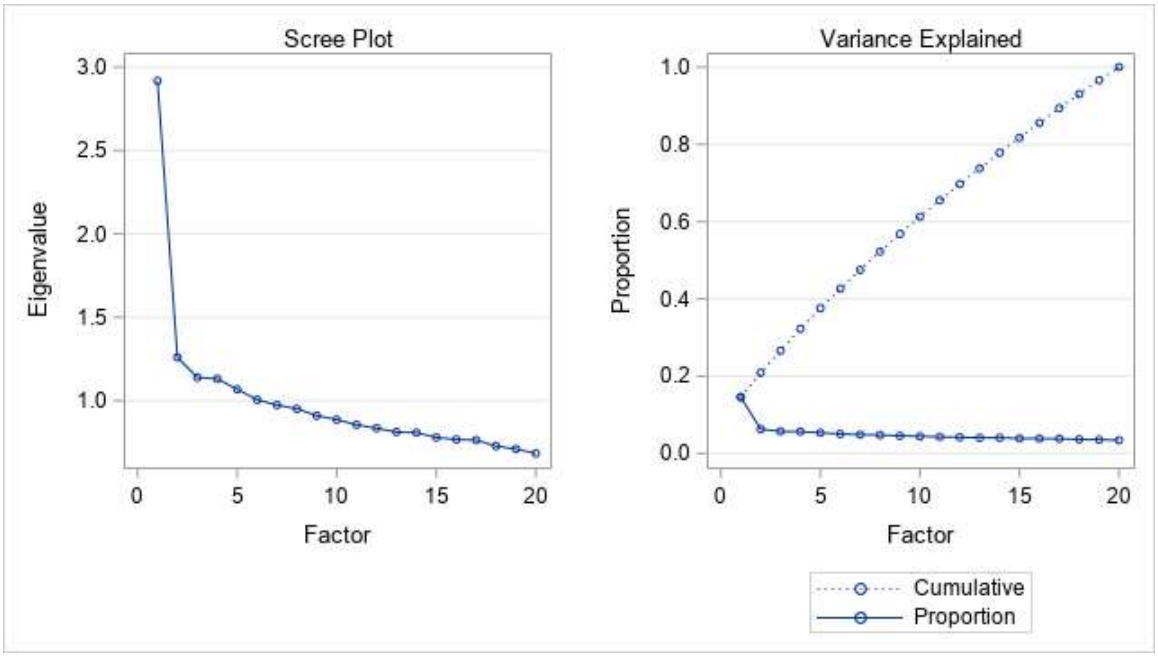


Figure 2. Scree Plot, Principal Component Analysis: Elixhauser Comorbidities.



Chapter 3: Supplementary Appendix

TABLE A: NATIONAL DRUG CODE LISTS

ESTROGENS (WITH OR WITHOUT PROGESTOGENS)

NDC	ROUTE	NAME	Primary Indication
00008-0078	PO	LO/OVRAL	CONTRACEPTION
00008-1117	PO	LYBREL	CONTRACEPTION
0008-2514	KIT	LO/OVRAL-28	CONTRACEPTION
0008-2535	KIT	TRIPHASIL-21	CONTRACEPTION
0008-2576	KIT	ALESSE 28	CONTRACEPTION
54868-4660	IM	LUNELLE	CONTRACEPTION
0052-0261	KIT	DESOGEN	CONTRACEPTION
00052-0273	VAG	NUVARING	CONTRACEPTION
0052-0283	KIT	CYCLESSA	CONTRACEPTION
0062-1251	KIT	ORTHO TRI CYCLEN LO	CONTRACEPTION
0062-1714	KIT	MODICON	CONTRACEPTION
0062-1761	KIT	ORTHO NOVUM	CONTRACEPTION
0062-1781	KIT	ORTHO-NOVUM	CONTRACEPTION
0062-1796	KIT	ORTHO CEPT	CONTRACEPTION
0062-1907	KIT	ORTHO CYCLEN	CONTRACEPTION
0062-1910	KIT	ORTHO TRI CYCLEN	CONTRACEPTION
00062-1920	TD	ORTHO EVRA	CONTRACEPTION
0093-2090	KIT	ZEOSA	CONTRACEPTION
0093-2140	KIT	TRI-LO-SPRINTEC	CONTRACEPTION
0093-3134	KIT	CAMRESE	CONTRACEPTION

0093-5328	KIT	JUNEL FE	CONTRACEPTION
0093-5423	KIT	GIANVI	CONTRACEPTION
0093-5661	KIT	GIANVI	CONTRACEPTION
0093-6148	KIT	CAMRESELO	CONTRACEPTION
00378-3340	TD	XULANE	CONTRACEPTION
0378-6550	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7277	KIT	NORGESTIMATE AND ETHINYL ESTRADIOL	CONTRACEPTION
00378-7280	PO	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7281	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7283	KIT	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7285	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7287	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7296	KIT	DESOGESTREL AND ETHINYL ESTRADIOL AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7298	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7300	KIT	DROSPIRENONE AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7301	KIT	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL	CONTRACEPTION
0378-7308	KIT	NORETHINDRONE AND ETHINYL ESTRADIOL AND FERROUS FUMARATE	CONTRACEPTION
0430-0005	KIT	ESTROSTEP FE	CONTRACEPTION
0430-0010	KIT	FEMCON FE	CONTRACEPTION
0430-0420	KIT	LO LOESTRIN FE	CONTRACEPTION
0430-0482	KIT	FEMCON FE	CONTRACEPTION
0430-0530	KIT	LOESTRIN 24 FE	CONTRACEPTION
0430-0535	KIT	MINASTRIN 24 FE	CONTRACEPTION
0430-0537	KIT	LO MINASTRIN FE	CONTRACEPTION

0430-0539	KIT	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL AND FERROUS FUMARATE	CONTRACEPTION
0430-0540	KIT	MINASTRIN 24 FE	CONTRACEPTION
0430-0570	KIT	ESTROSTEP FE	CONTRACEPTION
0430-0580	KIT	OVCON 35	CONTRACEPTION
0430-0585	KIT	OVCON 50	CONTRACEPTION
0430-0913	KIT	LOESTRIN FE 1/20	CONTRACEPTION
00430-0915	PO	LOESTRIN 21 1/20	CONTRACEPTION
00430-0916	PO	LOESTRIN 21 1.5/30	CONTRACEPTION
0430-0917	KIT	LOESTRIN FE 1.5/30	CONTRACEPTION
0555-9008	KIT	NORTREL	CONTRACEPTION
00555-9009	PO	NORTREL	CONTRACEPTION
0555-9010	KIT	NORTREL	CONTRACEPTION
0555-9012	KIT	NORTREL 7/7/7	CONTRACEPTION
0555-9014	KIT	LESSINA	CONTRACEPTION
0555-9016	KIT	SPRINTEC	CONTRACEPTION
0555-9018	KIT	TRI-SPRINTEC	CONTRACEPTION
0555-9020	KIT	PORTIA	CONTRACEPTION
00555-9025	PO	JUNEL 1/20	CONTRACEPTION
0555-9026	KIT	JUNEL FE 1/20	CONTRACEPTION
00555-9027	PO	JUNEL 1.5/30	CONTRACEPTION
0555-9028	KIT	JUNEL FE 1.5/30	CONTRACEPTION
0555-9032	KIT	TRI-LEGEST FE	CONTRACEPTION
0555-9034	KIT	BALZIVA	CONTRACEPTION
0555-9043	KIT	APRI	CONTRACEPTION
0555-9045	KIT	AVIANE	CONTRACEPTION

0555-9047	KIT	ENPRESSE	CONTRACEPTION
0555-9049	KIT	CRYSELLE	CONTRACEPTION
0555-9050	KIT	KARIVA	CONTRACEPTION
0555-9051	KIT	VELIVET	CONTRACEPTION
0555-9064	KIT	KELNOR 1/35	CONTRACEPTION
0555-9065	KIT	TRI-LO-SPRINTEC	CONTRACEPTION
0555-9066	KIT	ARANELLE	CONTRACEPTION
0555-9123	KIT	JOLESSA	CONTRACEPTION
0555-9131	KIT	OCELLA	CONTRACEPTION
0603-3590	KIT	GILDAGIA	CONTRACEPTION
0603-7512	KIT	KIMIDESS	CONTRACEPTION
0603-7521	KIT	CYCLAFEM 1/35	CONTRACEPTION
0603-7525	KIT	CYCLAFEM 7/7/7	CONTRACEPTION
0603-7540	KIT	EMOQUETTE	CONTRACEPTION
00603-7606	PO	GILDESS 1.5/30	CONTRACEPTION
00603-7607	PO	GILDESS 1/20	CONTRACEPTION
0603-7608	KIT	GILDESS FE 1.5/30	CONTRACEPTION
0603-7609	KIT	GILDESS FE 1/20	CONTRACEPTION
0603-7610	KIT	GILDESS 24 FE	CONTRACEPTION
0603-7625	KIT	MYZILRA	CONTRACEPTION
0603-7634	KIT	ORSYTHIA	CONTRACEPTION
0603-7642	KIT	PREVIFEM	CONTRACEPTION
0603-7663	KIT	TRI-PREVIFEM	CONTRACEPTION
0781-4058	KIT	ESTARYLLA	CONTRACEPTION
0781-4060	KIT	TRI-ESTARYLLA	CONTRACEPTION
0781-4062	KIT	TRI-LO- ESTARYLLA	CONTRACEPTION

0781-4075	KIT	DROSPIRENONE/ETHINYL ESTRADIOL/LEVOMEFOLATE CALCIUM AND LEVOMEFOLATE CALCIUM	CONTRACEPTION
0781-4103	KIT	DROSPIRENONE/ETHINYL ESTRADIOL/LEVOMEFOLATE CALCIUM AND LEVOMEFOLATE CALCIUM	CONTRACEPTION
0781-4110	KIT	ESTRADIOL VALERATE AND ESTRADIOL VALERATE/DIENOGEST	CONTRACEPTION
0781-5575	KIT	VIENVA TM	CONTRACEPTION
0781-5583	KIT	ALTAVERA	CONTRACEPTION
0781-5584	KIT	INTROVALE	CONTRACEPTION
0781-5656	KIT	LORYNA	CONTRACEPTION
0781-5658	KIT	SYEDA	CONTRACEPTION
12860-0018	TD	NUVARING	CONTRACEPTION
16714-340	KIT	LEVONEST	CONTRACEPTION
16714-346	KIT	DASETTA 7/7/7	CONTRACEPTION
16714-347	KIT	PHILITH	CONTRACEPTION
16714-348	KIT	DASETTA 1/35	CONTRACEPTION
16714-359	KIT	FALMINA	CONTRACEPTION
16714-360	KIT	MONO-LINYAH	CONTRACEPTION
16714-363	KIT	TRI-LINYAH	CONTRACEPTION
16714-365	KIT	ELINEST	CONTRACEPTION
16714-366	KIT	SETLAKIN	CONTRACEPTION
16714-367	KIT	DESOGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
16714-370	KIT	WERA	CONTRACEPTION
16714-404	KIT	PIMTREA	CONTRACEPTION
16714-405	KIT	LARIN FE 1.5/30	CONTRACEPTION
16714-406	KIT	LARIN FE 1/20	CONTRACEPTION
16714-407	KIT	LARIN 1.5/30	CONTRACEPTION

16714-408	KIT	LARIN 1/20	CONTRACEPTION
16714-416	KIT	LARIN 24 FE	CONTRACEPTION
16714-464	KIT	JULEBER	CONTRACEPTION
21695-407	KIT	TRINESSA	CONTRACEPTION
21695-685	KIT	TILIA FE	CONTRACEPTION
21695-769	KIT	SPRINTEC	CONTRACEPTION
21695-770	KIT	TRI-SPRINTEC	CONTRACEPTION
21695-855	KIT	ENPRESSE	CONTRACEPTION
21695-857	KIT	NECON	CONTRACEPTION
21695-995	KIT	AVIANE	CONTRACEPTION
24090-801	KIT	LO/OVRAL-28	CONTRACEPTION
24090-961	KIT	NORGESTREL/ETHINYL ESTRADIOL	CONTRACEPTION
24896-132	KIT	NORGESTIMATE AND ETHINYL ESTRADIOL	CONTRACEPTION
34908-340	KIT	LEVONEST	CONTRACEPTION
34908-346	KIT	DASETTA 7/7/7	CONTRACEPTION
34908-347	KIT	PHILITH	CONTRACEPTION
34908-348	KIT	DASETTA 1/35	CONTRACEPTION
34908-359	KIT	FALMINA	CONTRACEPTION
34908-360	KIT	MONO-LINYAH	CONTRACEPTION
34908-363	KIT	TRI-LINYAH	CONTRACEPTION
34908-365	KIT	ELINEST	CONTRACEPTION
34908-366	KIT	SETLAKIN	CONTRACEPTION
34908-370	KIT	WERA	CONTRACEPTION
34908-404	KIT	PIMTREA	CONTRACEPTION
34908-405	KIT	LARIN FE 1.5/30	CONTRACEPTION
34908-406	KIT	LARIN FE 1/20	CONTRACEPTION

34908-407	KIT	JULEBER	CONTRACEPTION
34908-408	KIT	LARIN 1/20	CONTRACEPTION
34908-416	KIT	LARIN 24 FE	CONTRACEPTION
34908-620	KIT	LEVONEST	CONTRACEPTION
42254-242	KIT	JUNEL FE 1.5/30	CONTRACEPTION
42254-260	KIT	LEVORA	CONTRACEPTION
42254-287	KIT	NECON 0.5/35	CONTRACEPTION
50090-0159	KIT	ORTHO-NOVUM	CONTRACEPTION
50102-120	KIT	AUBRA	CONTRACEPTION
50102-128	KIT	TARINA FE 1/20	CONTRACEPTION
50102-130	KIT	CHATEAL	CONTRACEPTION
50102-154	KIT	CYRED	CONTRACEPTION
50419-402	KIT	YASMIN	CONTRACEPTION
50419-403	KIT	SAFYRAL	CONTRACEPTION
50419-405	KIT	YAZ	CONTRACEPTION
50419-407	KIT	BEYAZ	CONTRACEPTION
50419-408	KIT	LEVLITE	CONTRACEPTION
50419-409	KIT	NATAZIA	CONTRACEPTION
50458-171	KIT	MODICON	CONTRACEPTION
50458-176	KIT	ORTHO NOVUM	CONTRACEPTION
50458-178	KIT	ORTHO-NOVUM	CONTRACEPTION
50458-191	KIT	ORTHO TRI CYCLEN	CONTRACEPTION
50458-0192	TD	ORTHO EVRA	CONTRACEPTION
50458-196	KIT	ORTHO CEPT	CONTRACEPTION
50458-197	KIT	ORTHO CYCLEN	CONTRACEPTION
50458-251	KIT	ORTHO TRI CYCLEN LO	CONTRACEPTION

51285-058	KIT	SEASONALE	CONTRACEPTION
51285-0079	PO	LOESTRIN 1/20	CONTRACEPTION
51285-080	KIT	LOESTRIN FE 1/20	CONTRACEPTION
51285-081	KIT	LOESTRIN FE 1/20	CONTRACEPTION
51285-0082	PO	LOESTRIN 1.5/30	CONTRACEPTION
51285-083	KIT	LOESTRIN FE 1.5/30	CONTRACEPTION
51285-084	KIT	LOESTRIN FE 1.5/30	CONTRACEPTION
51285-087	KIT	SEASONIQUE	CONTRACEPTION
51285-091	KIT	NORDETTE	CONTRACEPTION
51285-092	KIT	LOSEASONIQUE	CONTRACEPTION
51285-114	KIT	MIRCETTE	CONTRACEPTION
51285-120	KIT	MIRCETTE	CONTRACEPTION
51285-125	KIT	LOESTRIN FE 1/20	CONTRACEPTION
51285-126	KIT	LOESTRIN FE 1/20	CONTRACEPTION
51285-0127	PO	LOESTRIN 21 1.5/30	CONTRACEPTION
51285-128	KIT	LOESTRIN FE 1.5/30	CONTRACEPTION
51285-129	KIT	LOESTRIN FE 1.5/30	CONTRACEPTION
51285-0131	PO	LOESTRIN 21 1/20	CONTRACEPTION
51285-431	KIT	QUARTETTE	CONTRACEPTION
51660-572	KIT	DELYLA	CONTRACEPTION
52544-054	KIT	TILIA FE	CONTRACEPTION
52544-064	KIT	LAYOLIS FE	CONTRACEPTION
52544-087	KIT	TRINESSA LO	CONTRACEPTION
52544-143	KIT	TILIA FE	CONTRACEPTION
52544-165	KIT	NECON	CONTRACEPTION

52544-167	KIT	MICROGESTIN 24 FE	CONTRACEPTION
52544-175	KIT	TILIA FE	CONTRACEPTION
52544-204	KIT	GENERESS FE	CONTRACEPTION
52544-210	KIT	ZENCHENT	CONTRACEPTION
52544-219	KIT	LEENA	CONTRACEPTION
52544-228	KIT	AMETHIA LO	CONTRACEPTION
52544-233	KIT	MICROGESTIN	CONTRACEPTION
52544-247	KIT	MONONESSA	CONTRACEPTION
52544-248	KIT	TRINESSA	CONTRACEPTION
52544-249	KIT	MICROGESTIN	CONTRACEPTION
52544-254	KIT	BREVICON	CONTRACEPTION
52544-259	KIT	NORINYL	CONTRACEPTION
52544-268	KIT	AMETHIA	CONTRACEPTION
52544-274	KIT	TRI-NORINYL	CONTRACEPTION
52544-0276	PO	MICROGESTIN	CONTRACEPTION
52544-279	KIT	LEVORA	CONTRACEPTION
52544-0290	PO	MICROGESTIN	CONTRACEPTION
52544-291	KIT	TRIVORA	CONTRACEPTION
52544-292	KIT	ZENCHENT FE	CONTRACEPTION
52544-0295	PO	AMETHYST	CONTRACEPTION
52544-383	KIT	ZOVIA 1/35E-28	CONTRACEPTION
52544-384	KIT	ZOVIA 1/50E-28	CONTRACEPTION
52544-550	KIT	NECON 0.5/35	CONTRACEPTION
52544-552	KIT	NECON 1/35	CONTRACEPTION
52544-554	KIT	NECON 10/11	CONTRACEPTION

52544-630	KIT	MICROGESTIN FE	CONTRACEPTION
52544-631	KIT	MICROGESTIN FE	CONTRACEPTION
52544-847	KIT	LOW-OGESTREL	CONTRACEPTION
52544-848	KIT	OGESTREL 0.5/50	CONTRACEPTION
52544-936	KIT	NECON	CONTRACEPTION
52544-940	KIT	AZURETTE	CONTRACEPTION
52544-943	KIT	TRINESSA LO	CONTRACEPTION
52544-949	KIT	LUTERA	CONTRACEPTION
52544-0950	PO	MICROGESTIN	CONTRACEPTION
52544-0951	PO	MICROGESTIN	CONTRACEPTION
52544-953	KIT	ZENCHENT	CONTRACEPTION
52544-954	KIT	RECLIPSEN	CONTRACEPTION
52544-959	KIT	CAZIANT	CONTRACEPTION
52544-966	KIT	QUASENSE	CONTRACEPTION
52544-967	KIT	SRONYX	CONTRACEPTION
52544-981	KIT	ZARAH	CONTRACEPTION
52544-982	KIT	VESTURA	CONTRACEPTION
52544-XYZ	KIT	BREVICON	CONTRACEPTION
52544-ZZZ	KIT	NORINYL 1-35	CONTRACEPTION
54569-0679	KIT	LO/OVRAL-28	CONTRACEPTION
54569-0689	KIT	ORTHO-NOVUM	CONTRACEPTION
54868-0428	KIT	LO-OVRAL-28	CONTRACEPTION
54868-0502	KIT	LOESTRIN FE 1.5/30	CONTRACEPTION
54868-0508	KIT	ORTHO-NOVUM	CONTRACEPTION
54868-0509	KIT	OVCON 35	CONTRACEPTION
54868-0525	KIT	MODICON	CONTRACEPTION

54868-1512	KIT	LOESTRIN FE 1/20	CONTRACEPTION
54868-2316	KIT	SEASONALE	CONTRACEPTION
54868-2606	KIT	ORTHO CYCLEN	CONTRACEPTION
54868-3772	KIT	OVCON 50	CONTRACEPTION
54868-3863	KIT	DESOGEN	CONTRACEPTION
54868-3948	KIT	ESTROSTEP FE	CONTRACEPTION
54868-4045	KIT	NECON 1/35	CONTRACEPTION
54868-4093	KIT	ORTHO TRI CYCLEN	CONTRACEPTION
54868-4239	KIT	TRIVORA	CONTRACEPTION
54868-4240	KIT	ZOVIA 1/35E-28	CONTRACEPTION
54868-4590	KIT	YASMIN	CONTRACEPTION
54868-4607	KIT	LEVORA	CONTRACEPTION
54868-4670	TD	ORTHO EVRA	CONTRACEPTION
54868-4730	KIT	ORTHO TRI CYCLEN LO	CONTRACEPTION
54868-4742	KIT	KARIVA	CONTRACEPTION
54868-4744	KIT	MICROGESTIN FE	CONTRACEPTION
54868-4754	KIT	APRI	CONTRACEPTION
54868-4778	KIT	ZOVIA 1/50E-28	CONTRACEPTION
54868-4832	VAG	NUVARING	CONTRACEPTION
54868-4850	KIT	LOW-OGESTREL	CONTRACEPTION
54868-4851	KIT	CRYSELLE	CONTRACEPTION
54868-4860	KIT	ENPRESSE	CONTRACEPTION
54868-4911	KIT	CYCLESSA	CONTRACEPTION
54868-5028	KIT	TRI-SPRINTEC	CONTRACEPTION
54868-5031	KIT	VELIVET	CONTRACEPTION
54868-5286	KIT	NORTREL 7/7/7	CONTRACEPTION

54868-5326	KIT	JUNEL FE 1/20	CONTRACEPTION
54868-5356	KIT	AVIANE	CONTRACEPTION
54868-5535	KIT	YAZ	CONTRACEPTION
54868-5826	KIT	TRINESSA	CONTRACEPTION
54868-5828	KIT	YAZ	CONTRACEPTION
54868-5922	KIT	OCELLA	CONTRACEPTION
54868-5935	KIT	JUNEL FE 1.5/30	CONTRACEPTION
54868-5942	KIT	KELNOR 1/35	CONTRACEPTION
54868-6044	KIT	JOLESSA	CONTRACEPTION
54868-6100	KIT	LOESTRIN 24 FE	CONTRACEPTION
54868-6161	KIT	FEMCON FE	CONTRACEPTION
54868-6162	KIT	GIANVI	CONTRACEPTION
54868-6183	KIT	NATAZIA	CONTRACEPTION
54868-6210	KIT	LUTERA	CONTRACEPTION
54868-6213	PO	MICROGESTIN	CONTRACEPTION
54868-6272	PO	JUNEL 1.5/30	CONTRACEPTION
54868-6273	KIT	ZENCHENT	CONTRACEPTION
54868-6274	KIT	TILIA FE	CONTRACEPTION
54868-6275	KIT	LOSEASONIQUE	CONTRACEPTION
54868-6276	KIT	SEASONIQUE	CONTRACEPTION
57297-837	KIT	TRI-LO-MARZIA	CONTRACEPTION
57297-843	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
57297-844	KIT	KURVELO	CONTRACEPTION
57297-848	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL AND ETHINYL ESTRADIOL	CONTRACEPTION
57297-854	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION

57297-857	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
57297-875	KIT	VYFEMLA	CONTRACEPTION
57297-880	KIT	BEKYREE	CONTRACEPTION
57297-882	KIT	ENSKYCE	CONTRACEPTION
57297-886	KIT	NIKKI	CONTRACEPTION
57297-902	KIT	DROSPIRENONE AND ETHINYL ESTRADIOL	CONTRACEPTION
57297-903	KIT	KAITLIB FE	CONTRACEPTION
57994-001	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-002	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-006	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-007	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-015	KIT	DESOGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-017	KIT	NORGESTIMATE AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-018	KIT	DROSPIRENONE AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-019	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-020	KIT	DESOGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-025	KIT	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-0028	PO	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-029	KIT	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL	CONTRACEPTION
57994-032	KIT	NORETHINDRONE AND ETHINYL ESTRADIOL AND FERROUS FUMARATE	CONTRACEPTION
60889-0001	KIT	CYCLESSA	CONTRACEPTION
60889-0002	KIT	DESOGEN	CONTRACEPTION
60889-0282	KIT	DESOGEN	CONTRACEPTION
61786-382	KIT	DESOGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
61786-385	KIT	CAZIANT	CONTRACEPTION
63187-054	KIT	MONONESSA	CONTRACEPTION

63187-458	KIT	TRI-SPRINTEC	CONTRACEPTION
63285-0044	PO	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL	CONTRACEPTION
63285-0045	PO	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL	CONTRACEPTION
63285-0739	PO	PREVIFEM	CONTRACEPTION
63285-0740	PO	TRI PREVIFEM	CONTRACEPTION
63285-0741	PO	TRI PREVIFEM	CONTRACEPTION
63285-0743	PO	ORSYTHIA	CONTRACEPTION
63285-0744	PO	MYZILRA	CONTRACEPTION
63285-0745	PO	MYZILRA	CONTRACEPTION
63285-0746	PO	MYZILRA	CONTRACEPTION
63285-0747	PO	CYCLAFEM 1/35	CONTRACEPTION
63285-0748	PO	CYCLAFEM 7/7/7	CONTRACEPTION
63285-0749	PO	CYCLAFEM 7/7/7	CONTRACEPTION
63285-0750	PO	NORETHINDRONE AND ETHINYL ESTRADIOL	CONTRACEPTION
63285-0751	PO	DESOGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
65162-316	KIT	LOMEDIA 24 FE	CONTRACEPTION
65162-347	KIT	ZENCHENT FE	CONTRACEPTION
66116-436	KIT	TRI-SPRINTEC	CONTRACEPTION
66116-470	KIT	GIANVI	CONTRACEPTION
66993-611	KIT	SOLIA	CONTRACEPTION
68180-837	KIT	TRI-LO-MARZIA	CONTRACEPTION
68180-838	KIT	NORGESTIMATE AND ETHINYL ESTRADIOL	CONTRACEPTION
68180-843	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
68180-844	KIT	KURVELO	CONTRACEPTION
68180-846	KIT	DAYSEE	CONTRACEPTION
68180-848	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL AND ETHINYL ESTRADIOL	CONTRACEPTION

68180-854	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
68180-857	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
68180-864	KIT	BLISOVI 24 FE	CONTRACEPTION
68180-865	KIT	BLISOVI FE 1/20	CONTRACEPTION
68180-866	KIT	BLISOVI FE 1.5/30	CONTRACEPTION
68180-875	KIT	VYFEMLA	CONTRACEPTION
68180-880	KIT	BEKYREE	CONTRACEPTION
68180-882	KIT	ENSKYCE	CONTRACEPTION
68180-886	KIT	NIKKI	CONTRACEPTION
68180-892	KIT	PIRMELLA 7/7/7	CONTRACEPTION
68180-893	KIT	PIRMELLA 1/35	CONTRACEPTION
68180-897	KIT	NORETHINDRONE AND ETHINYL ESTRADIOL AND FERROUS FUMARATE	CONTRACEPTION
68180-898	KIT	WYMZYA FE	CONTRACEPTION
68180-899	KIT	WYMZYA FE	CONTRACEPTION
68180-902	KIT	DROSPIRENONE AND ETHINYL ESTRADIOL	CONTRACEPTION
68180-903	KIT	KAITLIB FE	CONTRACEPTION
68258-5005	KIT	NECON 777	CONTRACEPTION
68462-0132	PO	NORETHINDRONE ACETATE AND ETHINYL ESTRADIOL	CONTRACEPTION
68462-309	KIT	NORGESTIMATE AND ETHINYL ESTRADIOL	CONTRACEPTION
68462-316	KIT	BRIELLYN	CONTRACEPTION
68462-318	KIT	VIORELE	CONTRACEPTION
68462-388	KIT	MARLISSA	CONTRACEPTION
68462-394	KIT	ALYACEN 1/35	CONTRACEPTION
68462-556	KIT	ALYACEN 7/7/7	CONTRACEPTION
68462-565	KIT	NORGESTIMATE AND ETHINYL ESTRADIOL	CONTRACEPTION
68462-0637	PO	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION

68462-646	KIT	ASHLYNA	CONTRACEPTION
68462-672	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
68462-719	KIT	NORGESTIMATE AND ETHINYL ESTRADIOL	CONTRACEPTION
68462-720	KIT	DROSPIRENONE AND ETHINYL ESTRADIOL	CONTRACEPTION
68462-733	KIT	DROSPIRENONE AND ETHINYL ESTRADIOL	CONTRACEPTION
69238-1531	KIT	LARISSIA	CONTRACEPTION
69238-1551	KIT	FEMYNOR	CONTRACEPTION
75854-401	KIT	LEVONORGESTREL AND ETHINYL ESTRADOIL	CONTRACEPTION
75854-601	KIT	FALESSA	CONTRACEPTION
76388-283	KIT	CYCLESSA	CONTRACEPTION
76413-104	KIT	CYCLAFEM 7/7/7	CONTRACEPTION
76413-105	KIT	CYCLAFEM 1/35	CONTRACEPTION
76413-111	KIT	LEVONORGESTREL AND ETHINYL ESTRADIOL	CONTRACEPTION
76413-116	KIT	MYZILRA	CONTRACEPTION
76413-121	KIT	PREVIFEM	CONTRACEPTION
76413-128	KIT	TRI-SPRINTEC	CONTRACEPTION
76413-130	KIT	YASMIN	CONTRACEPTION
76413-0131	VAG	NUVARING	CONTRACEPTION
00032-1026	PO	ESTRATEST	MENOPAUSE
00046-0875	PO	PREMPRO	MENOPAUSE
00046-0937	PO	PREMPRO	MENOPAUSE
00046-0938	PO	PREMPRO	MENOPAUSE
00046-0975	PO	PREMPRO	MENOPAUSE
00046-1105	PO	PREMPRO	MENOPAUSE
00046-1106	PO	PREMPRO	MENOPAUSE
00046-1107	PO	PREMPRO	MENOPAUSE

00046-1108	PO	PREMPRO	MENOPAUSE
35356-0276	PO	PREMPRO	MENOPAUSE
35356-0277	PO	PREMPRO	MENOPAUSE
35356-0278	PO	PREMPRO	MENOPAUSE
35356-0279	PO	PREMPRO	MENOPAUSE
42816-1105	PO	PREMPRO	MENOPAUSE
42816-1106	PO	PREMPRO	MENOPAUSE
42816-1107	PO	PREMPRO	MENOPAUSE
42816-1108	PO	PREMPRO	MENOPAUSE
43853-0001	PO	ESTROGEN AND PROGESTERONE	MENOPAUSE
54569-4365	PO	PREMPRO	MENOPAUSE
54569-4618	PO	PREMPRO	MENOPAUSE
54569-4925	PO	PREMPRO	MENOPAUSE
54868-3799	PO	PREMPRO	MENOPAUSE
54868-4866	PO	PREMPRO	MENOPAUSE
54868-5047	PO	PREMPRO	MENOPAUSE
54868-5540	PO	PREMPRO	MENOPAUSE
58016-4074	PO	PREMPRO	MENOPAUSE
68258-5978	PO	PREMPRO	MENOPAUSE
68258-5980	PO	PREMPRO	MENOPAUSE
00003-0251	IM	DELESTROGEN	MENOPAUSE
00003-0330	IM	DELESTROGEN	MENOPAUSE
00003-0343	IM	DELESTROGEN	MENOPAUSE
00008-1123	PO	DUAVEE	MENOPAUSE

00009-0271	IM	DEPO-ESTRADIOL	MENOPAUSE
00009-3772	PO	OGEN	MENOPAUSE
00009-3773	PO	OGEN	MENOPAUSE
00009-3774	PO	OGEN	MENOPAUSE
00009-5174	PO	ACTIVELLA	MENOPAUSE
00032-1014	PO	ESTRATAB	MENOPAUSE
00032-1022	PO	ESTRATAB	MENOPAUSE
00032-1023	PO	ESTRATEST H.S.	MENOPAUSE
00032-1025	PO	ESTRATAB	MENOPAUSE
00037-4801	TD	ELESTRIN	MENOPAUSE
00037-4802	TD	ELESTRIN	MENOPAUSE
00046-0749	IM	PREMARIN	MENOPAUSE
00046-0864	PO	PREMARIN	MENOPAUSE
00046-0865	PO	PREMARIN	MENOPAUSE
00046-0866	PO	PREMARIN	MENOPAUSE
00046-0867	PO	PREMARIN	MENOPAUSE
00046-0868	PO	PREMARIN	MENOPAUSE
00046-0936	PO	PREMARIN	MENOPAUSE
00046-1100	PO	PREMARIN	MENOPAUSE
00046-1101	PO	PREMARIN	MENOPAUSE
00046-1102	PO	PREMARIN	MENOPAUSE
00046-1103	PO	PREMARIN	MENOPAUSE
00046-1104	PO	PREMARIN	MENOPAUSE
00046-2573	PO	PREMPHASE	MENOPAUSE
00046-2575	PO	PREMPHASE	MENOPAUSE
00046-2579	PO	PREMPHASE	MENOPAUSE

00046-3867	PO	PREMARIN	MENOPAUSE
00051-1028	TD	ESTROGEL	MENOPAUSE
00062-1840	PO	ORTHO-PREFEST	MENOPAUSE
00071-0144	PO	FEMHRT 1/5	MENOPAUSE
00071-3006	TD	FEMPATCH	MENOPAUSE
00075-0514	TD	COMBIPATCH	MENOPAUSE
00078-0343	TD	VIVELLE-DOT	MENOPAUSE
00078-0344	TD	VIVELLE-DOT	MENOPAUSE
00078-0345	TD	VIVELLE-DOT	MENOPAUSE
00078-0346	TD	VIVELLE-DOT	MENOPAUSE
00078-0348	TD	VIVELLE	MENOPAUSE
00078-0365	TD	VIVELLE-DOT	MENOPAUSE
00078-0377	TD	COMBIPATCH	MENOPAUSE
00078-0378	TD	COMBIPATCH	MENOPAUSE
00078-0480	TD	ESTRADERM	MENOPAUSE
00078-0481	TD	ESTRADERM	MENOPAUSE
00083-2310	TD	ESTRADERM	MENOPAUSE
00083-2320	TD	ESTRADERM	MENOPAUSE
00083-2325	TD	VIVELLE	MENOPAUSE
00083-2326	TD	VIVELLE	MENOPAUSE
00083-2327	TD	VIVELLE	MENOPAUSE
00083-2328	TD	VIVELLE	MENOPAUSE
00085-0298	PO	ESTINYL	MENOPAUSE
00087-0755	PO	ESTRACE	MENOPAUSE
00087-0756	PO	ESTRACE	MENOPAUSE
00093-0516	PO	CONJUGATED ESTROGENS	MENOPAUSE

00093-3122	PO	JINTELI	MENOPAUSE
00093-5454	PO	MIMVEY LO	MENOPAUSE
00093-5455	PO	MIMVEY	MENOPAUSE
00149-0491	TD	ALORA	MENOPAUSE
00169-5174	PO	ACTIVELLA	MENOPAUSE
00169-5175	PO	ACTIVELLA	MENOPAUSE
00179-0073	PO	ESTRADIOL	MENOPAUSE
00179-0074	PO	ESTRADIOL	MENOPAUSE
00179-0123	PO	ESTRADIOL	MENOPAUSE
00179-1999	PO	ESTRADIOL	MENOPAUSE
00182-1976	PO	ESTROPIPATE	MENOPAUSE
00245-0880	TD	DIVIGEL	MENOPAUSE
00245-0881	TD	DIVIGEL	MENOPAUSE
00245-0882	TD	DIVIGEL	MENOPAUSE
00247-0249	PO	PREMARIN	MENOPAUSE
00247-0250	PO	PREMARIN	MENOPAUSE
00247-0251	PO	PREMARIN	MENOPAUSE
00247-1226	PO	PREMARIN	MENOPAUSE
00314-0782	IM	VALERGEN	MENOPAUSE
00339-6404	PO	ESTRADIOL	MENOPAUSE
00364-6613	IM	ESTRADIOL VALERATE	MENOPAUSE
00378-1452	PO	ESTRADIOL	MENOPAUSE
00378-1454	PO	ESTRADIOL	MENOPAUSE
00378-1458	PO	ESTRADIOL	MENOPAUSE
00378-3349	TD	ESTRADIOL	MENOPAUSE
00378-3350	TD	ESTRADIOL	MENOPAUSE

00378-3351	TD	ESTRADIOL	MENOPAUSE
00378-3352	TD	ESTRADIOL	MENOPAUSE
00378-3360	TD	ESTRADIOL	MENOPAUSE
00378-3361	TD	ESTRADIOL	MENOPAUSE
00378-4551	PO	ESTROPIPATE	MENOPAUSE
00378-4553	PO	ESTROPIPATE	MENOPAUSE
00378-4555	PO	ESTROPIPATE	MENOPAUSE
00378-4640	TD	ESTRADIOL	MENOPAUSE
00378-4641	TD	ESTRADIOL	MENOPAUSE
00378-4642	TD	ESTRADIOL	MENOPAUSE
00378-4643	TD	ESTRADIOL	MENOPAUSE
00378-4644	TD	ESTRADIOL	MENOPAUSE
00421-0158	PO	GYNODIOL	MENOPAUSE
00421-0748	PO	GYNODIOL	MENOPAUSE
00421-0768	PO	GYNODIOL	MENOPAUSE
00421-1259	PO	GYNODIOL	MENOPAUSE
00430-0021	PO	ESTRACE	MENOPAUSE
00430-0023	PO	ESTRACE	MENOPAUSE
00430-0024	PO	ESTRACE	MENOPAUSE
00430-0145	PO	FEMHRT LOW DOSE	MENOPAUSE
00430-0389	PO	FEMTRACE	MENOPAUSE
00430-0390	PO	FEMTRACE	MENOPAUSE
00430-0391	PO	FEMTRACE	MENOPAUSE
00430-0544	PO	FEMHRT 1/5	MENOPAUSE
00430-0720	PO	ESTRACE	MENOPAUSE
00430-0721	PO	ESTRACE	MENOPAUSE

00430-0722	PO	ESTRACE	MENOPAUSE
00430-6201	VAG	FEMRING	MENOPAUSE
00430-6202	VAG	FEMRING	MENOPAUSE
00440-8170	PO	PREMARIN	MENOPAUSE
00440-8171	PO	PREMARIN	MENOPAUSE
00482-4900	TD	ELESTRIN	MENOPAUSE
00527-1409	PO	METHYLTESTOSTERONE/ESTERI	MENOPAUSE
00527-1410	PO	METHYLTESTOSTERONE/ESTERI	MENOPAUSE
00536-3849	PO	ESTRADIOL	MENOPAUSE
00555-0727	PO	ESTROPIPATE	MENOPAUSE
00555-0728	PO	ESTROPIPATE	MENOPAUSE
00555-0729	PO	ESTROPIPATE	MENOPAUSE
00555-0886	PO	ESTRADIOL	MENOPAUSE
00555-0887	PO	ESTRADIOL	MENOPAUSE
00555-0899	PO	ESTRADIOL	MENOPAUSE
00574-0870	IM	ESTRADIOL VALERATE	MENOPAUSE
00574-0872	IM	ESTRADIOL VALERATE	MENOPAUSE
00574-2067	TD	EVAMIST	MENOPAUSE
00591-0414	PO	ESTROPIPATE	MENOPAUSE
00591-0415	PO	ESTROPIPATE	MENOPAUSE
00591-0416	PO	ESTROPIPATE	MENOPAUSE
00591-0487	PO	ESTRADIOL	MENOPAUSE
00591-0488	PO	ESTRADIOL	MENOPAUSE
00591-0528	PO	ESTRADIOL	MENOPAUSE
00603-3556	PO	ESTRADIOL	MENOPAUSE
00781-3029	IM	ESTRADIOL VALERATE	MENOPAUSE

00781-3030	IM	ESTRADIOL VALERATE	MENOPAUSE
00781-3031	IM	ESTRADIOL VALERATE	MENOPAUSE
00781-7129	TD	ESTRADIOL	MENOPAUSE
00781-7138	TD	ESTRADIOL	MENOPAUSE
00781-7144	TD	ESTRADIOL	MENOPAUSE
00781-7156	TD	ESTRADIOL	MENOPAUSE
00781-7167	TD	ESTRADIOL	MENOPAUSE
00904-5177	PO	ESTRADIOL	MENOPAUSE
10544-0069	PO	ESTRADIOL	MENOPAUSE
10544-0070	PO	ESTRADIOL	MENOPAUSE
11528-0010	PO	COVARYX	MENOPAUSE
11528-0020	PO	COVARYX HS	MENOPAUSE
12280-0110	PO	ESTRADIOL	MENOPAUSE
13925-0171	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
13925-0172	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
15310-0010	PO	EEMT	MENOPAUSE
15310-0020	PO	EEMT HS	MENOPAUSE
15455-9535	TD	ESTRADIOL MICRONIZED	MENOPAUSE
15456-0325	TD	ESTRASORB	MENOPAUSE
16590-0052	PO	ESTRADIOL	MENOPAUSE
16590-0278	PO	ESTRADIOL	MENOPAUSE
17089-0359	PO	GUNA-BETA-ESTRADIOL	MENOPAUSE
17139-0613	TD	ESTROGEL	MENOPAUSE
17139-0617	TD	ESTROGEL	MENOPAUSE
18860-0480	TD	ELESTRIN	MENOPAUSE
18860-0490	TD	ELESTRIN	MENOPAUSE

21695-0613	PO	ESTRADIOL	MENOPAUSE
21695-0623	PO	ESTRADIOL	MENOPAUSE
21695-0696	PO	EEMT	MENOPAUSE
23155-0013	PO	ESTRADIOL	MENOPAUSE
23155-0014	PO	ESTRADIOL	MENOPAUSE
23155-0015	PO	ESTRADIOL	MENOPAUSE
23629-0018	PO	ESTRADIOL	MENOPAUSE
28831-0001	TD	PREMARIN	MENOPAUSE
29336-0325	TD	ESTRASORB	MENOPAUSE
33261-0667	PO	ESTRADIOL	MENOPAUSE
33261-0714	PO	ESTRADIOL	MENOPAUSE
33358-0295	PO	PREMARIN	MENOPAUSE
35356-0249	PO	PREMARIN	MENOPAUSE
35356-0250	PO	PREMARIN	MENOPAUSE
35356-0251	PO	PREMARIN	MENOPAUSE
35356-0426	PO	PREMARIN	MENOPAUSE
42023-0110	IM	DELESTROGEN	MENOPAUSE
42023-0111	IM	DELESTROGEN	MENOPAUSE
42023-0112	IM	DELESTROGEN	MENOPAUSE
42023-0134	IM	ESTRADIOL VALERATE	MENOPAUSE
42023-0135	IM	ESTRADIOL VALERATE	MENOPAUSE
42023-0136	IM	ESTRADIOL VALERATE	MENOPAUSE
42816-1100	PO	PREMARIN	MENOPAUSE
42816-1101	PO	PREMARIN	MENOPAUSE
42816-1102	PO	PREMARIN	MENOPAUSE
42816-1103	PO	PREMARIN	MENOPAUSE

42816-1104	PO	PREMARIN	MENOPAUSE
42816-1123	PO	DUAVEE	MENOPAUSE
43063-0201	PO	ESTRADIOL	MENOPAUSE
43063-0446	PO	ESTRADIOL	MENOPAUSE
43063-0651	PO	ESTRADIOL	MENOPAUSE
43353-0687	PO	PREMARIN	MENOPAUSE
43353-0688	PO	PREMARIN	MENOPAUSE
47781-0204	TD	ESTRADIOL	MENOPAUSE
47781-0205	TD	ESTRADIOL	MENOPAUSE
47781-0206	TD	ESTRADIOL	MENOPAUSE
47781-0207	TD	ESTRADIOL	MENOPAUSE
47781-0208	TD	ESTRADIOL	MENOPAUSE
47781-0209	TD	ESTRADIOL	MENOPAUSE
49999-0083	PO	ESTRADIOL	MENOPAUSE
49999-0109	PO	PREMARIN	MENOPAUSE
50220-0001	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
50220-0002	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
50268-0290	PO	ESTRADIOL	MENOPAUSE
50268-0291	PO	ESTRADIOL	MENOPAUSE
50268-0292	PO	ESTRADIOL	MENOPAUSE
50419-0451	TD	CLIMARA	MENOPAUSE
50419-0452	TD	CLIMARA	MENOPAUSE
50419-0453	TD	CLIMARA	MENOPAUSE
50419-0454	TD	CLIMARA	MENOPAUSE
50419-0455	TD	MENOSTAR	MENOPAUSE
50419-0456	TD	CLIMARA	MENOPAUSE

50419-0459	TD	CLIMARA	MENOPAUSE
50419-0482	PO	ANGELIQ	MENOPAUSE
50419-0483	PO	ANGELIQ	MENOPAUSE
50419-0491	TD	CLIMARA PRO	MENOPAUSE
51138-0037	PO	ESTRADIOL	MENOPAUSE
51138-0050	PO	ESTRADIOL	MENOPAUSE
51138-0051	PO	ESTRADIOL	MENOPAUSE
51285-0063	PO	PREFEST	MENOPAUSE
51285-0088	PO	PREFEST	MENOPAUSE
51285-0406	PO	ENJUVIA	MENOPAUSE
51285-0407	PO	ENJUVIA	MENOPAUSE
51285-0408	PO	ENJUVIA	MENOPAUSE
51285-0409	PO	ENJUVIA	MENOPAUSE
51285-0410	PO	ENJUVIA	MENOPAUSE
51285-0441	PO	CENESTIN	MENOPAUSE
51285-0442	PO	CENESTIN	MENOPAUSE
51285-0443	PO	CENESTIN	MENOPAUSE
51285-0444	PO	CENESTIN	MENOPAUSE
51285-0446	PO	CENESTIN	MENOPAUSE
51285-0501	PO	ESTRADIOL	MENOPAUSE
51285-0502	PO	ESTRADIOL	MENOPAUSE
51285-0504	PO	ESTRADIOL	MENOPAUSE
51991-0078	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
51991-0079	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
51991-0474	PO	ESTRADIOL/NORETHINDRONE A	MENOPAUSE
51991-0623	PO	ESTRADIOL/NORETHINDRONE A	MENOPAUSE

52544-0236	PO	JEVANTIQUE LO	MENOPAUSE
52544-0237	PO	JEVANTIQUE	MENOPAUSE
52544-0415	PO	ESTROPIPATE	MENOPAUSE
52544-0471	TD	ALORA	MENOPAUSE
52544-0472	TD	ALORA	MENOPAUSE
52544-0473	TD	ALORA	MENOPAUSE
52544-0487	PO	ESTRADIOL	MENOPAUSE
52544-0488	PO	ESTRADIOL	MENOPAUSE
52544-0528	PO	ESTRADIOL	MENOPAUSE
52544-0884	TD	ALORA	MENOPAUSE
52959-0222	PO	PREMARIN	MENOPAUSE
52959-0223	PO	PREMARIN	MENOPAUSE
52959-0323	PO	ESTRADIOL	MENOPAUSE
53746-0077	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
53746-0078	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
53808-0770	PO	PREMARIN	MENOPAUSE
54348-0714	PO	ESTRACE	MENOPAUSE
54348-0719	PO	ESTRACE	MENOPAUSE
54348-0723	PO	ESTRACE	MENOPAUSE
54569-0811	PO	PREMARIN	MENOPAUSE
54569-0812	PO	PREMARIN	MENOPAUSE
54569-0813	PO	PREMARIN	MENOPAUSE
54569-4907	PO	ESTRADIOL	MENOPAUSE
54569-4908	PO	ESTRADIOL	MENOPAUSE
54569-5164	PO	FEMHRT 1/5	MENOPAUSE
54569-5581	TD	VIVELLE-DOT	MENOPAUSE

54868-0365	PO	PREMARIN	MENOPAUSE
54868-0451	PO	PREMARIN	MENOPAUSE
54868-0452	PO	PREMARIN	MENOPAUSE
54868-0453	PO	PREMARIN	MENOPAUSE
54868-0454	VAG	PREMARIN	MENOPAUSE
54868-0494	PO	ESTRACE	MENOPAUSE
54868-0495	PO	ESTRACE	MENOPAUSE
54868-1261	PO	OGEN	MENOPAUSE
54868-1729	IM	DEPO-ESTRADIOL	MENOPAUSE
54868-2702	PO	PREMARIN	MENOPAUSE
54868-3564	PO	ESTRATEST H.S.	MENOPAUSE
54868-3565	PO	ESTRATEST	MENOPAUSE
54868-3672	PO	ORTHO-EST	MENOPAUSE
54868-3795	TD	VIVELLE	MENOPAUSE
54868-3796	TD	VIVELLE	MENOPAUSE
54868-3800	PO	PREMPHASE	MENOPAUSE
54868-4030	PO	ESTRADIOL	MENOPAUSE
54868-4031	PO	ESTRADIOL	MENOPAUSE
54868-4089	TD	CLIMARA	MENOPAUSE
54868-4241	TD	CLIMARA	MENOPAUSE
54868-4242	TD	VIVELLE-DOT	MENOPAUSE
54868-4243	TD	VIVELLE-DOT	MENOPAUSE
54868-4244	TD	VIVELLE-DOT	MENOPAUSE
54868-4269	PO	PREFEST	MENOPAUSE
54868-4370	PO	ESTRADIOL	MENOPAUSE
54868-4430	PO	ESTRACE	MENOPAUSE

54868-4677	PO	ESTRADIOL/NORETHINDRONE A	MENOPAUSE
54868-4679	PO	FEMHRT 1/5	MENOPAUSE
54868-4761	PO	ESTROPIPATE	MENOPAUSE
54868-4771	PO	SYNTEST D.S.	MENOPAUSE
54868-4811	TD	ESTRADIOL	MENOPAUSE
54868-4813	TD	ESTRADIOL	MENOPAUSE
54868-4831	TD	COMBIPATCH	MENOPAUSE
54868-4862	TD	VIVELLE-DOT	MENOPAUSE
54868-4865	PO	PREMARIN	MENOPAUSE
54868-4879	PO	CENESTIN	MENOPAUSE
54868-4900	TD	CLIMARA	MENOPAUSE
54868-4920	TD	VIVELLE-DOT	MENOPAUSE
54868-5008	TD	CLIMARA	MENOPAUSE
54868-5009	TD	ESTRADIOL	MENOPAUSE
54868-5371	TD	MENOSTAR	MENOPAUSE
54868-5415	PO	CENESTIN	MENOPAUSE
54868-5570	TD	CLIMARA PRO	MENOPAUSE
54868-5626	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
54868-5934	PO	MENEST	MENOPAUSE
54868-6030	VAG	FEMRING	MENOPAUSE
54868-6056	TD	DIVIGEL	MENOPAUSE
54868-6157	TD	EVAMIST	MENOPAUSE
54868-6163	PO	ENJUVIA	MENOPAUSE
54868-6165	PO	ENJUVIA	MENOPAUSE
54868-6184	PO	ANGELIQ	MENOPAUSE
54868-6211	PO	MENEST	MENOPAUSE

54868-6212	PO	MENEST	MENOPAUSE
54868-6251	PO	JINTELI	MENOPAUSE
55154-0216	PO	PREMARIN	MENOPAUSE
55154-0217	PO	PREMARIN	MENOPAUSE
55154-0218	PO	PREMARIN	MENOPAUSE
55154-0219	PO	PREMARIN	MENOPAUSE
55154-6242	PO	ESTRADIOL	MENOPAUSE
55289-0047	PO	PREMARIN	MENOPAUSE
55289-0101	PO	ESTRACE	MENOPAUSE
55289-0123	PO	PREMARIN	MENOPAUSE
55289-0396	PO	ESTRACE	MENOPAUSE
55289-0503	PO	ESTINYL	MENOPAUSE
55289-0603	PO	ESTRADIOL	MENOPAUSE
55289-0761	PO	ESTRADIOL	MENOPAUSE
55289-0943	PO	PREMARIN	MENOPAUSE
55887-0342	PO	ESTRADIOL	MENOPAUSE
57664-0314	PO	ESTROPIPATE	MENOPAUSE
57664-0316	PO	ESTROPIPATE	MENOPAUSE
57866-0097	PO	ESTRACE	MENOPAUSE
57866-6680	PO	PREMARIN	MENOPAUSE
57866-6682	PO	PREMARIN	MENOPAUSE
57866-7987	PO	PREMARIN	MENOPAUSE
57955-0006	TD	TRI ESTROGEN	MENOPAUSE
58016-0039	PO	ESTRACE	MENOPAUSE
58016-0744	PO	PREMARIN	MENOPAUSE
58016-0948	PO	PREMARIN	MENOPAUSE

58016-0983	PO	PREMARIN	MENOPAUSE
58016-3182	TD	ESTRADERM	MENOPAUSE
58864-0422	PO	PREMARIN	MENOPAUSE
58864-0803	PO	ESTRADIOL	MENOPAUSE
58864-0804	PO	ESTRADIOL	MENOPAUSE
58864-0951	PO	MENEST	MENOPAUSE
59772-0025	PO	ESTRADIOL	MENOPAUSE
59772-0026	PO	ESTRADIOL	MENOPAUSE
59772-0027	PO	ESTRADIOL	MENOPAUSE
60346-0752	PO	ESTINYL	MENOPAUSE
60429-0327	PO	ESTRADIOL	MENOPAUSE
60429-0328	PO	ESTRADIOL	MENOPAUSE
60429-0329	PO	ESTRADIOL	MENOPAUSE
60846-0201	PO	ACTIVELLA	MENOPAUSE
60846-0202	PO	ACTIVELLA	MENOPAUSE
61570-0072	PO	MENEST	MENOPAUSE
61570-0073	PO	MENEST	MENOPAUSE
61570-0074	PO	MENEST	MENOPAUSE
61570-0075	PO	MENEST	MENOPAUSE
61570-0125	PO	PREFEST	MENOPAUSE
61570-0180	IM	DELESTROGEN	MENOPAUSE
61570-0181	IM	DELESTROGEN	MENOPAUSE
61570-0182	IM	DELESTROGEN	MENOPAUSE
61919-0198	PO	ESTRADIOL	MENOPAUSE
61919-0278	PO	ESTRADIOL	MENOPAUSE
62559-0149	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE

62559-0150	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
62559-1490	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
62559-1507	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
63094-1215	TD	EVAMIST	MENOPAUSE
63094-6048	TD	ELESTRIN	MENOPAUSE
63094-6170	TD	ESTROGEL	MENOPAUSE
63187-0482	PO	ESTRADIOL	MENOPAUSE
63539-0112	PO	DUAVEE	MENOPAUSE
63539-0122	PO	DUAVEE	MENOPAUSE
63629-2766	PO	ESTRADIOL	MENOPAUSE
63629-3755	PO	ESTRADIOL	MENOPAUSE
63629-4788	PO	ESTRADIOL	MENOPAUSE
63629-5208	PO	ESTRADIOL	MENOPAUSE
64011-0215	TD	EVAMIST	MENOPAUSE
64205-0048	PO	ESTRADIOL	MENOPAUSE
64205-0488	PO	ESTRADIOL	MENOPAUSE
64248-0101	PO	ORTHO-EST	MENOPAUSE
64248-0102	PO	ORTHO-EST	MENOPAUSE
64248-0310	TD	ESCLIM	MENOPAUSE
64248-0320	TD	ESCLIM	MENOPAUSE
64248-0330	TD	ESCLIM	MENOPAUSE
64248-0340	TD	ESCLIM	MENOPAUSE
64248-0350	TD	ESCLIM	MENOPAUSE
65162-0877	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
65162-0878	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
66336-0599	PO	PREMARIN	MENOPAUSE

66336-0977	PO	ESTROPIPATE	MENOPAUSE
66500-0158	PO	GYNODIOL	MENOPAUSE
66500-0259	PO	GYNODIOL	MENOPAUSE
66500-0325	TD	ESTRASORB	MENOPAUSE
66500-0748	PO	GYNODIOL	MENOPAUSE
66500-0768	PO	GYNODIOL	MENOPAUSE
66576-0230	PO	SYNTEST H.S.	MENOPAUSE
66576-0231	PO	SYNTEST D.S.	MENOPAUSE
66993-0920	PO	ESSIAN	MENOPAUSE
66993-0921	PO	ESSIAN H.S.	MENOPAUSE
67544-1008	PO	ESTRADIOL	MENOPAUSE
68025-0065	TD	DIVIGEL	MENOPAUSE
68025-0066	TD	DIVIGEL	MENOPAUSE
68025-0067	TD	DIVIGEL	MENOPAUSE
68030-6682	PO	PREMARIN	MENOPAUSE
68030-7987	PO	PREMARIN	MENOPAUSE
68115-0388	PO	ESTRADIOL	MENOPAUSE
68180-0827	PO	FYAVOLV	MENOPAUSE
68180-0828	PO	FYAVOLV	MENOPAUSE
68258-9088	PO	PREMARIN	MENOPAUSE
68462-0173	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
68462-0174	PO	ESTERIFIED ESTROGENS/METH	MENOPAUSE
68462-0656	PO	NORETHINDRONE ACETATE/ETH	MENOPAUSE
68462-0657	PO	NORETHINDRONE ACETATE/ETH	MENOPAUSE
68788-9416	PO	ESTRADIOL	MENOPAUSE
68788-9901	PO	ESTRADIOL	MENOPAUSE

68968-0514	TD	COMBIPATCH	MENOPAUSE
68968-0525	TD	COMBIPATCH	MENOPAUSE
68968-6610	TD	MINIVELLE	MENOPAUSE
68968-6625	TD	MINIVELLE	MENOPAUSE
68968-6637	TD	MINIVELLE	MENOPAUSE
68968-6650	TD	MINIVELLE	MENOPAUSE
68968-6675	TD	MINIVELLE	MENOPAUSE
69189-0487	PO	ESTRADIOL	MENOPAUSE
69189-0886	PO	ESTRADIOL	MENOPAUSE
69189-0899	PO	ESTRADIOL	MENOPAUSE
69189-1105	PO	PREMARIN	MENOPAUSE
69238-1251	PO	LOPREEZA	MENOPAUSE
69238-1252	PO	LOPREEZA	MENOPAUSE
69761-0006	PO	ESTRADIOL	MENOPAUSE
69761-0010	PO	ESTRADIOL	MENOPAUSE
69761-0012	PO	ESTRADIOL	MENOPAUSE
69761-0015	PO	ESTRADIOL	MENOPAUSE
69761-0018	PO	ESTRADIOL	MENOPAUSE
69761-0020	PO	ESTRADIOL	MENOPAUSE
69761-0022	PO	ESTRADIOL	MENOPAUSE
69761-0025	PO	ESTRADIOL	MENOPAUSE
70243-0617	TD	ESTROGEL	MENOPAUSE
99207-0190	TD	ESTRASORB	MENOPAUSE

APPENDIX TABLE A (CONT'D): PROGESTOGENS

NDC	Route	Name

006427470	PO	SLYND
000520272	ID	IMPLANON
000520274	ID	NEXPLANON
000524330	ID	NEXPLANON
001823072	IM	HYDROXYPROGESTERONE CAPROATE
002237896	IM	HYDROXYPROGESTERONE CAPROATE
002237914	IM	HYDROXYPROGESTERONE CAPROATE
002237915	IM	HYDROXYPROGESTERONE CAPROATE
002986902	IM	PRO-DEPO
003140891	IM	HYLUTIN
003140892	IM	HYDROXYPROGESTERONE CAPROATE
003642184	IM	HYDROXYPROGESTERONE CAPROATE
003646690	IM	HYDROXYPROGESTERONE CAPROATE
004020597	IM	HYDROXYPROGESTERONE CAPROATE
004020598	IM	HYDROXYPROGESTERONE CAPROATE
004180521	IM	HY/GESTRONE
004560741	IM	GESTEROL L.A. 250
005171767	IM	HYDROXYPROGESTERONE CAPROATE
005171791	IM	HYDROXYPROGESTERONE CAPROATE NOVAPL
005361695	IM	HYDROXYPROGESTERONE CAPROATE
005885059	IM	HYPROGEST 250
006840129	IM	PRO-SPAN
008143783	IM	HYDROXYPROGESTERONE CAPROATE
008396279	IM	HYDROXYPROGESTERONE CAPROATE
009040852	IM	HYDROXYPROGESTERONE CAPROATE
170222093	IM	HYDROXYPROGESTERONE CAPROATE
253320088	IM	PRODROX
444370598	IM	DELTA-LUTIN
476490145	IM	HYDROXYPROGESTERONE CAPROATE
513090421	IM	HYDROXYPROGESTERONE CAPROATE
513090422	IM	HYDROXYPROGESTERONE CAPROATE
514320617	IM	HYDROXYPROGESTERONE CAPROATE
545691408	IM	HYDROXYPROGESTERONE CAPROATE
545693020	IM	HYDROXYPROGESTERONE CAPROATE
551500309	IM	HYDROXYPROGESTERONE CAPROATE
551500310	IM	HYDROXYPROGESTERONE CAPROATE
594410585	IM	DURALUTIN
625590540	IM	HYDROXYPROGESTERONE CAPROATE
640110243	IM	MAKENA
640110247	IM	MAKENA
640110301	SC	MAKENA

669930038	IM	HYDROXYPROGESTERONE CAPROATE
669930039	IM	HYDROXYPROGESTERONE CAPROATE
674570886	IM	HYDROXYPROGESTERONE CAPROATE
674570967	IM	HYDROXYPROGESTERONE CAPROATE
692381797	IM	HYDROXYPROGESTERONE CAPROATE
712250104	IM	HYDROXYPROGESTERONE CAPROATE
712250105	IM	HYDROXYPROGESTERONE CAPROATE
000082564	ID	NORPLANT SYSTEM
000235858	IU	LILETTA
504190421	IU	MIRENA
504190422	IU	SKYLA
504190423	IU	MIRENA
504190424	IU	KYLEENA
525440035	IU	LILETTA
000090050	PO	PROVERA
000090051	PO	PROVERA
000090064	PO	PROVERA
000090065	PO	PROVERA
000090286	PO	PROVERA
000090287	PO	PROVERA
000090626	IM	DEPO-PROVERA
000090746	IM	DEPO-PROVERA CONTRACEPTIVE
000094709	SC	DEPO-SUBQ PROVERA 104
000097376	IM	DEPO-PROVERA CONTRACEPTIVE
000321007	PO	CURRETAB
000460896	PO	CYCRIN
000470265	PO	MEDROXYPROGESTERONE ACETATE
000470266	PO	MEDROXYPROGESTERONE ACETATE
000470874	PO	MEDROXYPROGESTERONE ACETATE
000860049	PO	AMEN
001821196	PO	MEDROXYPROGESTERONE ACETATE
003023950	PO	MEDROXYPROGESTERONE ACETATE
003395851	PO	MEDROXYPROGESTERONE ACETATE
003492309	PO	MEDROXYPROGESTERONE ACETATE
003640521	PO	MEDROXYPROGESTERONE ACETATE
004031779	PO	PROVERA
004031780	PO	MEDROXYPROGESTERONE ACETATE
004033241	PO	PROVERA
004034588	PO	CYCRIN
004035043	IM	DEPO-PROVERA CONTRACEPTIVE
004054618	PO	MEDROXYPROGESTERONE ACETATE
005363995	PO	MEDROXYPROGESTERONE ACETATE

005365905	PO	MEDROXYPROGESTERONE ACETATE
005365906	PO	MEDROXYPROGESTERONE ACETATE
005365907	PO	MEDROXYPROGESTERONE ACETATE
005485400	IM	MEDROXYPROGESTERONE ACETATE
005485410	IM	MEDROXYPROGESTERONE ACETATE NOVAPLU
005485701	IM	MEDROXYPROGESTERONE ACETATE
005485711	IM	MEDROXYPROGESTERONE ACETATE NOVAPLU
005550779	PO	MEDROXYPROGESTERONE ACETATE
005550872	PO	MEDROXYPROGESTERONE ACETATE
005550873	PO	MEDROXYPROGESTERONE ACETATE
006034365	PO	MEDROXYPROGESTERONE ACETATE
006034366	PO	MEDROXYPROGESTERONE ACETATE
006034367	PO	MEDROXYPROGESTERONE ACETATE
006034368	PO	MEDROXYPROGESTERONE ACETATE
006654001	PO	MEDROXYPROGESTERONE ACETATE
006770803	PO	MEDROXYPROGESTERONE ACETATE
006771617	PO	MEDROXYPROGESTERONE ACETATE
006771618	PO	MEDROXYPROGESTERONE ACETATE
006771619	PO	MEDROXYPROGESTERONE ACETATE
007036801	IM	MEDROXYPROGESTERONE ACETATE
007036811	IM	MEDROXYPROGESTERONE ACETATE
007811680	PO	MEDROXYPROGESTERONE ACETATE
008144660	PO	MEDROXYPROGESTERONE ACETATE
008320087	PO	MEDROXYPROGESTERONE ACETATE
008396610	PO	MEDROXYPROGESTERONE ACETATE
009042690	PO	MEDROXYPROGESTERONE ACETATE
009045227	PO	MEDROXYPROGESTERONE ACETATE
009045228	PO	MEDROXYPROGESTERONE ACETATE
105440001	PO	MEDROXYPROGESTERONE ACETATE
105440062	PO	MEDROXYPROGESTERONE ACETATE
118450341	PO	MEDROXYPROGESTERONE ACETATE
167140981	IM	MEDROXYPROGESTERONE ACETATE
167140999	IM	MEDROXYPROGESTERONE ACETATE
216950896	PO	MEDROXYPROGESTERONE ACETATE
234905853	PO	MEDROXYPROGESTERONE ACETATE
234905854	IM	MEDROXYPROGESTERONE ACETATE
234905855	PO	MEDROXYPROGESTERONE ACETATE
234905857	PO	MEDROXYPROGESTERONE ACETATE
332610534	PO	MEDROXYPROGESTERONE ACETATE
332610609	PO	MEDROXYPROGESTERONE ACETATE
332610740	PO	MEDROXYPROGESTERONE ACETATE

353560364	PO	MEDROXYPROGESTERONE ACETATE
422540314	PO	MEDROXYPROGESTERONE ACETATE
430630438	PO	MEDROXYPROGESTERONE ACETATE
499990092	PO	MEDROXYPROGESTERONE ACETATE
499990272	PO	PROVERA
499990494	PO	MEDROXYPROGESTERONE ACETATE
500900166	PO	MEDROXYPROGESTERONE ACETATE
500900459	IM	DEPO-PROVERA
500900490	PO	MEDROXYPROGESTERONE ACETATE
500900491	PO	MEDROXYPROGESTERONE ACETATE
500900665	IM	DEPO-PROVERA
500900883	IM	MEDROXYPROGESTERONE ACETATE
500903328	IM	MEDROXYPROGESTERONE ACETATE
501020591	IM	MEDROXYPROGESTERONE ACETATE
512850540	PO	MEDROXYPROGESTERONE ACETATE
512850541	PO	MEDROXYPROGESTERONE ACETATE
512850542	PO	MEDROXYPROGESTERONE ACETATE
514320267	PO	MEDROXYPROGESTERONE ACETATE
525550463	PO	MEDROXYPROGESTERONE ACETATE
529590420	PO	MEDROXYPROGESTERONE ACETATE
529590943	PO	MEDROXYPROGESTERONE ACETATE
545690809	PO	MEDROXYPROGESTERONE ACETATE
545690816	PO	PROVERA
545691779	PO	PROVERA
545691849	PO	PROVERA
545693701	IM	DEPO-PROVERA CONTRACEPTIVE
545693806	PO	MEDROXYPROGESTERONE ACETATE
545693807	PO	MEDROXYPROGESTERONE ACETATE
545693957	IM	DEPO-PROVERA
545693958	IM	DEPO-PROVERA
545694904	IM	DEPO-PROVERA CONTRACEPTIVE
545695527	IM	DEPO-PROVERA CONTRACEPTIVE
545695616	IM	MEDROXYPROGESTERONE ACETATE
545696219	SC	DEPO-SUBQ PROVERA 104
545696771	IM	MEDROXYPROGESTERONE ACETATE
545698516	PO	PROVERA
545698524	PO	PROVERA
545698570	PO	MEDROXYPROGESTERONE ACETATE
545698571	PO	MEDROXYPROGESTERONE ACETATE
545698572	PO	MEDROXYPROGESTERONE ACETATE
548070550	PO	MEDROXYPROGESTERONE ACETATE
548680109	PO	MEDROXYPROGESTERONE ACETATE

548680290	PO	PROVERA
548681010	PO	PROVERA
548682984	PO	MEDROXYPROGESTERONE ACETATE
548682985	PO	MEDROXYPROGESTERONE ACETATE
548683348	IM	DEPO-PROVERA
548683613	IM	DEPO-PROVERA CONTRACEPTIVE
548684100	IM	DEPO-PROVERA CONTRACEPTIVE
548685257	IM	MEDROXYPROGESTERONE ACETATE
550451989	PO	MEDROXYPROGESTERONE ACETATE
550453505	IM	DEPO-PROVERA CONTRACEPTIVE
550453940	IM	MEDROXYPROGESTERONE ACETATE
551750333	PO	MEDROXYPROGESTERONE ACETATE
551750334	PO	MEDROXYPROGESTERONE ACETATE
552890034	PO	PROVERA
552890121	PO	PROVERA
552890160	PO	MEDROXYPROGESTERONE ACETATE
552890816	PO	MEDROXYPROGESTERONE ACETATE
552890908	PO	MEDROXYPROGESTERONE ACETATE
557000699	PO	MEDROXYPROGESTERONE ACETATE
558290356	PO	MEDROXYPROGESTERONE ACETATE
558870291	PO	MEDROXYPROGESTERONE ACETATE
558870472	PO	MEDROXYPROGESTERONE
561260480	PO	MEDROXYPROGESTERONE ACETATE
580160926	PO	MEDROXYPROGESTERONE ACETATE
580160969	PO	PROVERA
584690399	PO	MEDROXYPROGESTERONE ACETATE
588640744	PO	MEDROXYPROGESTERONE ACETATE
597620055	PO	MEDROXYPROGESTERONE ACETATE
597620056	PO	MEDROXYPROGESTERONE ACETATE
597620058	PO	MEDROXYPROGESTERONE ACETATE
597623740	PO	MEDROXYPROGESTERONE ACETATE
597623741	PO	MEDROXYPROGESTERONE ACETATE
597623742	PO	MEDROXYPROGESTERONE ACETATE
597624537	IM	MEDROXYPROGESTERONE ACETATE
597624538	IM	MEDROXYPROGESTERONE ACETATE
599115896	PO	CYCRIN
599115897	PO	CYCRIN
599115898	PO	CYCRIN
603460213	PO	MEDROXYPROGESTERONE ACETATE
603460571	PO	MEDROXYPROGESTERONE ACETATE
603460603	PO	PROVERA
603460848	PO	PROVERA

606870105	PO	MEDROXYPROGESTERONE ACETATE
626825005	PO	MEDROXYPROGESTERONE ACETATE
627560090	IM	MEDROXYPROGESTERONE ACETATE
631870382	PO	MEDROXYPROGESTERONE ACETATE
636292612	PO	MEDROXYPROGESTERONE ACETATE
636292613	PO	MEDROXYPROGESTERONE
661160288	PO	MEDROXYPROGESTERONE ACETATE
662670140	PO	MEDROXYPROGESTERONE ACETATE
662670141	PO	MEDROXYPROGESTERONE ACETATE
663360213	PO	MEDROXYPROGESTERONE ACETATE
663360603	PO	MEDROXYPROGESTERONE ACETATE
663360622	PO	MEDROXYPROGESTERONE ACETATE
674570887	IM	MEDROXYPROGESTERONE ACETATE
681150225	PO	MEDROXYPROGESTERONE ACETATE
712050118	IM	MEDROXYPROGESTERONE ACETATE
727890043	PO	MEDROXYPROGESTERONE ACETATE
000250235	PO	NOR-QD
000460894	PO	AYGESTIN
000621411	PO	ORTHO MICRONOR
000710882	PO	NORLUTIN
000710918	PO	NORLUTATE
003787272	PO	NORETHINDRONE
003787291	PO	NORETHINDRONE ACETATE
003787292	PO	NORETHINDRONE
005550211	PO	NORETHINDRONE ACETATE
005550344	PO	ERRIN
005550715	PO	CAMILA
167140073	PO	NORETHINDRONE
167140413	PO	NORETHINDRONE
167140440	PO	DEBLITANE
167140441	PO	SHAROBEL
332610752	PO	NORETHINDRONE ACETATE
333580269	PO	NORETHINDRONE
422910650	PO	NORETHINDRONE ACETATE
500902150	PO	NORETHINDRONE
500903235	PO	NORLYDA
501020100	PO	LYZA
501020200	PO	TULANA
501020300	PO	LYLEQ
502680602	PO	NORETHINDRONE ACETATE
504580194	PO	ORTHO MICRONOR
507420267	PO	NORETHINDRONE ACETATE

512850424	PO	AYGESTIN
516600127	PO	NORLYROC
518620100	PO	ERRIN
518620102	PO	CAMILA
518620884	PO	CAMILA
518620886	PO	ERRIN
525440235	PO	NOR-QD
525440629	PO	NORA-BE
525440892	PO	JOLIVETTE
545694984	PO	ORTHO MICRONOR
545695161	PO	NOR-QD
545695396	PO	NORETHINDRONE ACETATE
545696565	PO	NORETHINDRONE
545696575	PO	HEATHER
548684369	PO	ORTHO MICRONOR
548684712	PO	NOR-QD
548684814	PO	CAMILA
548684829	PO	NORETHINDRONE ACETATE
550453498	PO	ERRIN
558870782	PO	NORETHINDRONE
580164827	PO	NORETHINDRONE
599115894	PO	AYGESTIN
631870748	PO	NORETHINDRONE
651620475	PO	NORETHINDRONE ACETATE
658620715	PO	NORETHINDRONE ACETATE
658620925	PO	INCASSIA
681800876	PO	NORETHINDRONE
681800877	PO	JENCYCLA
682585949	PO	JOLIVETTE
684620303	PO	HEATHER
684620304	PO	NORETHINDRONE ACETATE
684620305	PO	NORETHINDRONE
692381583	PO	NORLYDA
000080062	PO	OVRETTE
000021438	IM	PROGESTERONE
000321708	PO	PROMETRIUM
000321711	PO	PROMETRIUM
000935353	PO	PROGESTERONE
000935354	PO	PROGESTERONE
001439725	IM	PROGESTERONE
001820862	IM	PROGESTERONE
002238381	IM	PROGESTERONE IN OIL

003140060	IM	PROGESTERONE IN OIL
003646683	IM	PROGESTERONE IN SESAME OIL
003742007	NA	PROGESTERONE
004020379	IM	PROGESTERONE IN OIL
004031756	IM	PROGESTERONE IN OIL
004180631	IM	PROGESTERONE IN SESAME OIL
004560921	IM	GESTEROL 50
004631056	IM	PROGEST
005170750	IM	PROGESTERONE
005367400	IM	PROGESTERONE IN OIL
005740704	IM	PROGESTERONE IN OIL
005885056	IM	PROGESTERONE IN OIL
005913128	IM	PROGESTERONE
005913964	PO	PROGESTERONE
005913965	PO	PROGESTERONE
006770301	IM	PROGESTERONE IN OIL
006840113	IM	PROGESTERONE IN SESAME OIL
008146388	IM	PROGESTERONE IN OIL
008395165	IM	PROGESTERONE IN OIL
009041050	IM	PROGESTERONE
108887135	PO	PROGESTERONE
108887136	PO	PROGESTERONE
121205025	NA	PROGESTERONE
121205026	NA	PROGESTERONE
122800199	PO	PROMETRIUM
170222869	IM	PROGESTERONE
173144231	IU	PROGESTASERT SYSTEM
174780766	PO	PROGESTERONE
174780767	PO	PROGESTERONE
234909340	PO	PROMETRIUM
253320081	IM	PROGESTERONE IN OIL
422540408	PO	PROGESTERONE
422910688	PO	PROGESTERONE
422910689	PO	PROGESTERONE
422910690	PO	PROGESTERONE
422910691	PO	PROGESTERONE
430630649	PO	PROGESTERONE
435980349	PO	PROGESTERONE MICRONIZED
435980350	PO	PROGESTERONE MICRONIZED
490720589	IM	PROGESTERONE IN OIL
500902527	PO	PROGESTERONE
500903240	PO	PROGESTERONE

545692160	IM	PROGESTERONE
545696608	PO	PROGESTERONE
548683396	IM	PROGESTERONE
548684230	PO	PROMETRIUM
548684250	PO	PROMETRIUM
551500306	IM	PROGESTERONE
555666500	VG	ENDOMETRIN
557260598	IM	CPC-CARPENTERS
575480379	IM	PROGESTERONE
594410607	IM	PROGESTERONE
596510152	PO	PROGESTERONE
596510153	PO	PROGESTERONE
604290281	PO	PROGESTERONE
604290282	PO	PROGESTERONE
604290868	PO	PROGESTERONE MICRONIZED
604290869	PO	PROGESTERONE MICRONIZED
633230261	IM	PROGESTERONE IN SESAME OIL
651620807	PO	PROGESTERONE
651620808	PO	PROGESTERONE
681150819	PO	PROMETRIUM
687887199	PO	PROGESTERONE
693870101	PO	PROGESTERONE
693870102	PO	PROGESTERONE
694520148	PO	PROGESTERONE
694520149	PO	PROGESTERONE
694520233	PO	PROGESTERONE
694520234	PO	PROGESTERONE
695430372	PO	PROMETRIUM
695430373	PO	PROMETRIUM
695430374	PO	PROGESTERONE
695430375	PO	PROGESTERONE
712050293	PO	PROGESTERONE
713350713	PO	PROGESTERONE

APPENDIX TABLE A (CONT'D): ANTI-COAGULANTS (EXCLUDING HEPARIN FLUSHES)

NDC	Name
00548563200	AMERINET CHOICE ENOXAPARIN SODIUM
00548563100	AMERINET CHOICE ENOXAPARIN SODIUM

00548563500	AMERINET CHOICE ENOXAPARIN SODIUM
00548563400	AMERINET CHOICE ENOXAPARIN SODIUM
00548563700	AMERINET CHOICE ENOXAPARIN SODIUM
00548563300	AMERINET CHOICE ENOXAPARIN SODIUM
00548563600	AMERINET CHOICE ENOXAPARIN SODIUM
00056003002	CALCIPARINE
54868215402	COUMADIN
54868212802	COUMADIN
54868212803	COUMADIN
54868212902	COUMADIN
54868212901	COUMADIN
54569854200	COUMADIN
54868525500	COUMADIN
54868215401	COUMADIN
54868225200	COUMADIN
54868215400	COUMADIN
54868125906	COUMADIN
54868215403	COUMADIN
54868339900	COUMADIN
54868525501	COUMADIN
54868406300	COUMADIN
54868125903	COUMADIN
54868125902	COUMADIN
54868125904	COUMADIN
54868212900	COUMADIN
54868125901	COUMADIN
54868406301	COUMADIN
54868245401	COUMADIN
54868245402	COUMADIN
54868245400	COUMADIN
54868125900	COUMADIN
54868339901	COUMADIN
54868225201	COUMADIN
54868125907	COUMADIN
54868125905	COUMADIN
54868212903	COUMADIN
54868212801	COUMADIN

54868212800	COUMADIN
55289014397	COUMADIN
55289028630	COUMADIN
55289028650	COUMADIN
55289028697	COUMADIN
55175538003	COUMADIN
54569444300	COUMADIN
54569015801	COUMADIN
54569021201	COUMADIN
54569021202	COUMADIN
54569187701	COUMADIN
54569015901	COUMADIN
54569015900	COUMADIN
54569187700	COUMADIN
54569444301	COUMADIN
54569015800	COUMADIN
49999009330	COUMADIN
50090002800	COUMADIN
49999041130	COUMADIN
68115009330	COUMADIN
68115009230	COUMADIN
66105052310	COUMADIN
66105051910	COUMADIN
66105051810	COUMADIN
66267063600	COUMADIN
66105011010	COUMADIN
66105052110	COUMADIN
66267063300	COUMADIN
66267062800	COUMADIN
66267063200	COUMADIN
66267063100	COUMADIN
66267063000	COUMADIN
66267062900	COUMADIN
66105017610	COUMADIN
66267063400	COUMADIN
66105017070	COUMADIN
66267063500	COUMADIN
60346038125	COUMADIN
60346038130	COUMADIN
60346091830	COUMADIN

58864022314	COUMADIN
58864022330	COUMADIN
58864003030	COUMADIN
58864003014	COUMADIN
58864035715	COUMADIN
35356054090	COUMADIN
00403068301	COUMADIN
00403481701	COUMADIN
00403068330	COUMADIN
00403065330	COUMADIN
00590032496	COUMADIN
00590032435	COUMADIN
00056017090	COUMADIN
00056017075	COUMADIN
00056016875	COUMADIN
00056017301	COUMADIN
00056017070	COUMADIN
00056017230	COUMADIN
00056016970	COUMADIN
00056016890	COUMADIN
00056017470	COUMADIN
00056017030	COUMADIN
00056017670	COUMADIN
00056016975	COUMADIN
00056017201	COUMADIN
00056017270	COUMADIN
00056017675	COUMADIN
00056018875	COUMADIN
00056018801	COUMADIN
00056017401	COUMADIN
00056018901	COUMADIN
00056016990	COUMADIN
00056017475	COUMADIN
00056018970	COUMADIN
00056018870	COUMADIN
00056017690	COUMADIN
00056017630	COUMADIN
00056017601	COUMADIN
00056017375	COUMADIN
00056017290	COUMADIN

00056017275	COUMADIN
00056017001	COUMADIN
00056016901	COUMADIN
00056016870	COUMADIN
00056016801	COUMADIN
00056017370	COUMADIN
00056018890	COUMADIN
00056018975	COUMADIN
00056018990	COUMADIN
00074779361	DEXTROSE/HEPARIN SODIUM
00074628611	DEXTROSE/HEPARIN SODIUM
00074779362	DEXTROSE/HEPARIN SODIUM
00074779462	DEXTROSE/HEPARIN SODIUM
00074628703	DEXTROSE/HEPARIN SODIUM
00074779312	DEXTROSE/HEPARIN SODIUM
00074779461	DEXTROSE/HEPARIN SODIUM
00074779423	DEXTROSE/HEPARIN SODIUM
00074779412	DEXTROSE/HEPARIN SODIUM
00074628602	DEXTROSE/HEPARIN SODIUM
00074779323	DEXTROSE/HEPARIN SODIUM
00074776103	DEXTROSE/HEPARIN SODIUM
00074776003	DEXTROSE/HEPARIN SODIUM
00074628702	DEXTROSE/HEPARIN SODIUM
00409776003	DEXTROSE/HEPARIN SODIUM
00409779352	DEXTROSE/HEPARIN SODIUM
00409776103	DEXTROSE/HEPARIN SODIUM
00409779362	DEXTROSE/HEPARIN SODIUM
00264957710	DEXTROSE/HEPARIN SODIUM
00338054903	DEXTROSE/HEPARIN SODIUM
00338044903	DEXTROSE/HEPARIN SODIUM
00338045003	DEXTROSE/HEPARIN SODIUM
00264956710	DEXTROSE/HEPARIN SODIUM
00264958720	DEXTROSE/HEPARIN SODIUM
00338055003	DEXTROSE/HEPARIN SODIUM
00338055002	DEXTROSE/HEPARIN SODIUM
00264557710	DEXTROSE/HEPARIN SODIUM
00338045102	DEXTROSE/HEPARIN SODIUM
50090143600	ELIQUIS
50090143700	ELIQUIS
54569651300	ELIQUIS

54569651400	ELIQUIS
00003089431	ELIQUIS
00003089421	ELIQUIS
00003089331	ELIQUIS
00003089321	ELIQUIS
00003089491	ELIQUIS
00003089470	ELIQUIS
00003376432	ELIQUIS 30 DAY STARTER PACK
00003376442	ELIQUIS 30 DAY STARTER PACK
00003376474	ELIQUIS 30 DAY STARTER PACK
63323056586	ENOXAPARIN SODIUM
63323056883	ENOXAPARIN SODIUM
63323056887	ENOXAPARIN SODIUM
63323056984	ENOXAPARIN SODIUM
63323056884	ENOXAPARIN SODIUM
63323056890	ENOXAPARIN SODIUM
63323056888	ENOXAPARIN SODIUM
63323056990	ENOXAPARIN SODIUM
62037086420	ENOXAPARIN SODIUM
62037083920	ENOXAPARIN SODIUM
62037084920	ENOXAPARIN SODIUM
62037086320	ENOXAPARIN SODIUM
62037086120	ENOXAPARIN SODIUM
62037086620	ENOXAPARIN SODIUM
62037086220	ENOXAPARIN SODIUM
60505079200	ENOXAPARIN SODIUM
60505079504	ENOXAPARIN SODIUM
60505079600	ENOXAPARIN SODIUM
60505079400	ENOXAPARIN SODIUM
60505079100	ENOXAPARIN SODIUM
60505079204	ENOXAPARIN SODIUM
60505079300	ENOXAPARIN SODIUM
60505079404	ENOXAPARIN SODIUM
60505079800	ENOXAPARIN SODIUM
60505079104	ENOXAPARIN SODIUM
60505079304	ENOXAPARIN SODIUM
60505079804	ENOXAPARIN SODIUM
60505079501	ENOXAPARIN SODIUM
60505079604	ENOXAPARIN SODIUM
50090344500	ENOXAPARIN SODIUM

54569678400	ENOXAPARIN SODIUM
00548560600	ENOXAPARIN SODIUM
00548560700	ENOXAPARIN SODIUM
00548560300	ENOXAPARIN SODIUM
00548560200	ENOXAPARIN SODIUM
00548560400	ENOXAPARIN SODIUM
00548560500	ENOXAPARIN SODIUM
00548560100	ENOXAPARIN SODIUM
00781312168	ENOXAPARIN SODIUM
00781312293	ENOXAPARIN SODIUM
00781311968	ENOXAPARIN SODIUM
00781311903	ENOXAPARIN SODIUM
00781312105	ENOXAPARIN SODIUM
00703868021	ENOXAPARIN SODIUM
00781311901	ENOXAPARIN SODIUM
00781311905	ENOXAPARIN SODIUM
00703854023	ENOXAPARIN SODIUM
00703853023	ENOXAPARIN SODIUM
00781342868	ENOXAPARIN SODIUM
00781361268	ENOXAPARIN SODIUM
00781350005	ENOXAPARIN SODIUM
00781350069	ENOXAPARIN SODIUM
00781361204	ENOXAPARIN SODIUM
00703861023	ENOXAPARIN SODIUM
00781312104	ENOXAPARIN SODIUM
00781365569	ENOXAPARIN SODIUM
00781365505	ENOXAPARIN SODIUM
00781342804	ENOXAPARIN SODIUM
00781335666	ENOXAPARIN SODIUM
00781335603	ENOXAPARIN SODIUM
00781322464	ENOXAPARIN SODIUM
00781313363	ENOXAPARIN SODIUM
00781313301	ENOXAPARIN SODIUM
00703854021	ENOXAPARIN SODIUM
00781312169	ENOXAPARIN SODIUM
00781311969	ENOXAPARIN SODIUM
00781311964	ENOXAPARIN SODIUM
00781311963	ENOXAPARIN SODIUM
00781311902	ENOXAPARIN SODIUM
00703861021	ENOXAPARIN SODIUM

00703858023	ENOXAPARIN SODIUM
00703856023	ENOXAPARIN SODIUM
00703868023	ENOXAPARIN SODIUM
00703856021	ENOXAPARIN SODIUM
00781311904	ENOXAPARIN SODIUM
00781311966	ENOXAPARIN SODIUM
00703851021	ENOXAPARIN SODIUM
00703853021	ENOXAPARIN SODIUM
00703851023	ENOXAPARIN SODIUM
00781322402	ENOXAPARIN SODIUM
00703858021	ENOXAPARIN SODIUM
00955101510	ENOXAPARIN SODIUM
00955100810	ENOXAPARIN SODIUM
00955100310	ENOXAPARIN SODIUM
00955101010	ENOXAPARIN SODIUM
00955100610	ENOXAPARIN SODIUM
00955100410	ENOXAPARIN SODIUM
00955101601	ENOXAPARIN SODIUM
00955101210	ENOXAPARIN SODIUM
63323056999	ENOXAPARIN SODIUM NOVAPLUS
63323056898	ENOXAPARIN SODIUM NOVAPLUS
63323056995	ENOXAPARIN SODIUM NOVAPLUS
63323056896	ENOXAPARIN SODIUM NOVAPLUS
63323056899	ENOXAPARIN SODIUM NOVAPLUS
63323056894	ENOXAPARIN SODIUM NOVAPLUS
63323056593	ENOXAPARIN SODIUM NOVAPLUS
63323056895	ENOXAPARIN SODIUM NOVAPLUS
62856050001	FRAGMIN
62856015001	FRAGMIN
62856015010	FRAGMIN
62856025001	FRAGMIN
62856012510	FRAGMIN
62856075010	FRAGMIN
62856018010	FRAGMIN
62856010110	FRAGMIN
62856010201	FRAGMIN
62856018001	FRAGMIN
62856025010	FRAGMIN
62856075001	FRAGMIN
62856010101	FRAGMIN

62856025101	FRAGMIN
62856012501	FRAGMIN
62856050010	FRAGMIN
00069022301	FRAGMIN
00069022302	FRAGMIN
00069022001	FRAGMIN
00069020602	FRAGMIN
00069020601	FRAGMIN
00069021701	FRAGMIN
00069022002	FRAGMIN
00069019602	FRAGMIN
00069019501	FRAGMIN
00069022801	FRAGMIN
00069023201	FRAGMIN
00069019601	FRAGMIN
00069022802	FRAGMIN
00069021702	FRAGMIN
00069019502	FRAGMIN
00013242601	FRAGMIN
00013242691	FRAGMIN
00013243606	FRAGMIN
00013240691	FRAGMIN
00013519101	FRAGMIN
00013519001	FRAGMIN
63323045909	HEPARIN SODIUM
63739090026	HEPARIN SODIUM
63323003810	HEPARIN SODIUM
63739092025	HEPARIN SODIUM
63323054011	HEPARIN SODIUM
63323091501	HEPARIN SODIUM
63323054201	HEPARIN SODIUM
63323003830	HEPARIN SODIUM
63323004710	HEPARIN SODIUM
63323054001	HEPARIN SODIUM
63323054207	HEPARIN SODIUM
63739094229	HEPARIN SODIUM
63323027602	HEPARIN SODIUM
63739093128	HEPARIN SODIUM
63739090128	HEPARIN SODIUM
63739095325	HEPARIN SODIUM

63739096425	HEPARIN SODIUM
63323026201	HEPARIN SODIUM
63323054302	HEPARIN SODIUM
63739095311	HEPARIN SODIUM
63323054031	HEPARIN SODIUM
63739098625	HEPARIN SODIUM
67457037212	HEPARIN SODIUM
67457038431	HEPARIN SODIUM
67457038399	HEPARIN SODIUM
67457037412	HEPARIN SODIUM
67457038310	HEPARIN SODIUM
67457038510	HEPARIN SODIUM
67457060399	HEPARIN SODIUM
67457060305	HEPARIN SODIUM
67457060299	HEPARIN SODIUM
67457037299	HEPARIN SODIUM
67457060202	HEPARIN SODIUM
67457038599	HEPARIN SODIUM
67457038499	HEPARIN SODIUM
67457037399	HEPARIN SODIUM
67457037312	HEPARIN SODIUM
67457037499	HEPARIN SODIUM
71019011003	HEPARIN SODIUM
71019011001	HEPARIN SODIUM
71019011005	HEPARIN SODIUM
71019012801	HEPARIN SODIUM
71019011004	HEPARIN SODIUM
71019011002	HEPARIN SODIUM
71019011006	HEPARIN SODIUM
61553092860	HEPARIN SODIUM
61553092570	HEPARIN SODIUM
61553092160	HEPARIN SODIUM
61553092245	HEPARIN SODIUM
61553092680	HEPARIN SODIUM
61553092472	HEPARIN SODIUM
49072029130	HEPARIN SODIUM
49072029710	HEPARIN SODIUM
49072029905	HEPARIN SODIUM
54868048500	HEPARIN SODIUM
54569426600	HEPARIN SODIUM

54569426700	HEPARIN SODIUM
00024073357	HEPARIN SODIUM
00008027703	HEPARIN SODIUM
00002721701	HEPARIN SODIUM
00009031708	HEPARIN SODIUM
00008029301	HEPARIN SODIUM
00008027702	HEPARIN SODIUM
00008027701	HEPARIN SODIUM
00008027550	HEPARIN SODIUM
00008027501	HEPARIN SODIUM
00009031709	HEPARIN SODIUM
00009031710	HEPARIN SODIUM
00008048201	HEPARIN SODIUM
00009026812	HEPARIN SODIUM
00009031711	HEPARIN SODIUM
00009026802	HEPARIN SODIUM
00009031701	HEPARIN SODIUM
00024073350	HEPARIN SODIUM
00024073359	HEPARIN SODIUM
00009026801	HEPARIN SODIUM
00009029101	HEPARIN SODIUM
00008027601	HEPARIN SODIUM
00008027802	HEPARIN SODIUM
00009031702	HEPARIN SODIUM
00009026807	HEPARIN SODIUM
00074140211	HEPARIN SODIUM
00074258102	HEPARIN SODIUM
00074258202	HEPARIN SODIUM
00074258302	HEPARIN SODIUM
00074131631	HEPARIN SODIUM
00074131614	HEPARIN SODIUM
00069005903	HEPARIN SODIUM
00069006201	HEPARIN SODIUM
00074140231	HEPARIN SODIUM
00074140201	HEPARIN SODIUM
00074131601	HEPARIN SODIUM
00069005901	HEPARIN SODIUM
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35356058260	WARFARIN SODIUM
33261035721	WARFARIN SODIUM
33261035507	WARFARIN SODIUM
33261035660	WARFARIN SODIUM
35356057190	WARFARIN SODIUM
33261035760	WARFARIN SODIUM
35356039790	WARFARIN SODIUM
35356090630	WARFARIN SODIUM
15330010701	WARFARIN SODIUM
15330026810	WARFARIN SODIUM
15330010201	WARFARIN SODIUM
15330026701	WARFARIN SODIUM
15330010210	WARFARIN SODIUM
12280031230	WARFARIN SODIUM
15330010801	WARFARIN SODIUM
15330010601	WARFARIN SODIUM
15330010101	WARFARIN SODIUM
15330026801	WARFARIN SODIUM
15330010001	WARFARIN SODIUM
12280031290	WARFARIN SODIUM
15330026601	WARFARIN SODIUM
15330010110	WARFARIN SODIUM
12280031260	WARFARIN SODIUM
15330010010	WARFARIN SODIUM
00781036307	WARFARIN SODIUM
00781038107	WARFARIN SODIUM
00781036407	WARFARIN SODIUM
00781038707	WARFARIN SODIUM
00781038607	WARFARIN SODIUM
00677079401	WARFARIN SODIUM
00781036607	WARFARIN SODIUM

00814852214	WARFARIN SODIUM
00781037707	WARFARIN SODIUM
00781036907	WARFARIN SODIUM
00781035207	WARFARIN SODIUM
00904256270	WARFARIN SODIUM
00904256160	WARFARIN SODIUM
00904256260	WARFARIN SODIUM
00904256060	WARFARIN SODIUM
00904256280	WARFARIN SODIUM
00349839101	WARFARIN SODIUM
00378880410	WARFARIN SODIUM
00339653712	WARFARIN SODIUM
00378880610	WARFARIN SODIUM
00378887501	WARFARIN SODIUM
00302820401	WARFARIN SODIUM
00349839001	WARFARIN SODIUM
00339654312	WARFARIN SODIUM
00378880101	WARFARIN SODIUM
00378880501	WARFARIN SODIUM
00339654012	WARFARIN SODIUM
00378880210	WARFARIN SODIUM
00339653912	WARFARIN SODIUM
00339653812	WARFARIN SODIUM
00339654512	WARFARIN SODIUM
00378880310	WARFARIN SODIUM
00378881001	WARFARIN SODIUM
00378880301	WARFARIN SODIUM
00378881010	WARFARIN SODIUM
00378880401	WARFARIN SODIUM
00378880201	WARFARIN SODIUM
00378880110	WARFARIN SODIUM
00378887510	WARFARIN SODIUM
00339654412	WARFARIN SODIUM
00378880601	WARFARIN SODIUM
00378882501	WARFARIN SODIUM
00339654112	WARFARIN SODIUM
00378880510	WARFARIN SODIUM
00302820201	WARFARIN SODIUM
00302820001	WARFARIN SODIUM
00378882510	WARFARIN SODIUM

00339654212	WARFARIN SODIUM
00182267989	WARFARIN SODIUM
00182267189	WARFARIN SODIUM
00182267889	WARFARIN SODIUM
00182267401	WARFARIN SODIUM
00182267701	WARFARIN SODIUM
00182267489	WARFARIN SODIUM
00182267210	WARFARIN SODIUM
00182267501	WARFARIN SODIUM
00182267689	WARFARIN SODIUM
00223237501	WARFARIN SODIUM
00182267101	WARFARIN SODIUM
00182267589	WARFARIN SODIUM
00223237502	WARFARIN SODIUM
00223237702	WARFARIN SODIUM
00223237701	WARFARIN SODIUM
00223237802	WARFARIN SODIUM
00223237902	WARFARIN SODIUM
00223237901	WARFARIN SODIUM
00182267110	WARFARIN SODIUM
00182267389	WARFARIN SODIUM
00182267201	WARFARIN SODIUM
00223237601	WARFARIN SODIUM
00223237602	WARFARIN SODIUM
00182267901	WARFARIN SODIUM
00182267789	WARFARIN SODIUM
00182267801	WARFARIN SODIUM
00223237801	WARFARIN SODIUM
00182267601	WARFARIN SODIUM
00182267610	WARFARIN SODIUM
00182267301	WARFARIN SODIUM
00182267289	WARFARIN SODIUM
00182267310	WARFARIN SODIUM
00406205901	WARFARIN SODIUM
00527107201	WARFARIN SODIUM
00527100310	WARFARIN SODIUM
00527100301	WARFARIN SODIUM
00406205310	WARFARIN SODIUM
00406205401	WARFARIN SODIUM
00406205410	WARFARIN SODIUM

00406205801	WARFARIN SODIUM
00406205610	WARFARIN SODIUM
00406205701	WARFARIN SODIUM
00527106410	WARFARIN SODIUM
00406206401	WARFARIN SODIUM
00406205210	WARFARIN SODIUM
00406206410	WARFARIN SODIUM
00406205301	WARFARIN SODIUM
00406205501	WARFARIN SODIUM
00406205201	WARFARIN SODIUM
00406205601	WARFARIN SODIUM
00406205510	WARFARIN SODIUM
00555083205	WARFARIN SODIUM
00555083105	WARFARIN SODIUM
00555083302	WARFARIN SODIUM
00555083202	WARFARIN SODIUM
00615151253	WARFARIN SODIUM
00615454853	WARFARIN SODIUM
00555087405	WARFARIN SODIUM
00555087402	WARFARIN SODIUM
00555086905	WARFARIN SODIUM
00615150963	WARFARIN SODIUM
00615454763	WARFARIN SODIUM
00615455729	WARFARIN SODIUM
00615151229	WARFARIN SODIUM
00615151263	WARFARIN SODIUM
00615151029	WARFARIN SODIUM
00555083502	WARFARIN SODIUM
00615454953	WARFARIN SODIUM
00615454963	WARFARIN SODIUM
00615454753	WARFARIN SODIUM
00615455029	WARFARIN SODIUM
00615151063	WARFARIN SODIUM
00615150953	WARFARIN SODIUM
00555083504	WARFARIN SODIUM
00615151053	WARFARIN SODIUM
00615454829	WARFARIN SODIUM
00615454929	WARFARIN SODIUM
00615455129	WARFARIN SODIUM
00615454729	WARFARIN SODIUM

00615454863	WARFARIN SODIUM
00615150929	WARFARIN SODIUM
00555083402	WARFARIN SODIUM
00555092502	WARFARIN SODIUM
00555092602	WARFARIN SODIUM
00555083305	WARFARIN SODIUM
00555083405	WARFARIN SODIUM
00555086902	WARFARIN SODIUM
00555083102	WARFARIN SODIUM
76282033210	WARFARIN SODIUM
76282032910	WARFARIN SODIUM
76282033010	WARFARIN SODIUM
76282033101	WARFARIN SODIUM
76282033201	WARFARIN SODIUM
71335045204	WARFARIN SODIUM
71335045201	WARFARIN SODIUM
76282032701	WARFARIN SODIUM
71335058001	WARFARIN SODIUM
76282033310	WARFARIN SODIUM
76282032710	WARFARIN SODIUM
76282032810	WARFARIN SODIUM
71335045203	WARFARIN SODIUM
76282032801	WARFARIN SODIUM
71335045202	WARFARIN SODIUM
76282032901	WARFARIN SODIUM
76282033401	WARFARIN SODIUM
76282033110	WARFARIN SODIUM
76282033501	WARFARIN SODIUM
76282033001	WARFARIN SODIUM
76282033301	WARFARIN SODIUM
00093171210	WARFARIN SODIUM
00093171310	WARFARIN SODIUM
00093172301	WARFARIN SODIUM
00093172110	WARFARIN SODIUM
00093172001	WARFARIN SODIUM
00093171801	WARFARIN SODIUM
00093171410	WARFARIN SODIUM
00093171501	WARFARIN SODIUM
00093171601	WARFARIN SODIUM
00093172101	WARFARIN SODIUM

00093171901	WARFARIN SODIUM
00093171610	WARFARIN SODIUM
00093171401	WARFARIN SODIUM
00093171301	WARFARIN SODIUM
00093171201	WARFARIN SODIUM
50458057760	XARELTO
50458058010	XARELTO
50458057701	XARELTO
50458057710	XARELTO
50458058090	XARELTO
50458057810	XARELTO
50458057910	XARELTO
50458057930	XARELTO
50458057718	XARELTO
50458057890	XARELTO
50458057830	XARELTO
50458057990	XARELTO
50458057989	XARELTO
50458058030	XARELTO
42254037601	XARELTO
50458058451	XARELTO STARTER PACK
00007323202	ARIXTRA
00007323211	ARIXTRA
00007323402	ARIXTRA
00007323411	ARIXTRA
00007323601	ARIXTRA
00007323602	ARIXTRA
00007323611	ARIXTRA
35356007802	ARIXTRA
35356007810	ARIXTRA
35356008002	ARIXTRA
35356008010	ARIXTRA
55111067802	FONDAPARINUX SODIUM
55111067810	FONDAPARINUX SODIUM
55111067902	FONDAPARINUX SODIUM
55111067910	FONDAPARINUX SODIUM
55111068002	FONDAPARINUX SODIUM
55111068010	FONDAPARINUX SODIUM
55111068102	FONDAPARINUX SODIUM
55111068110	FONDAPARINUX SODIUM

60505607800	FONDAPARINUX SODIUM
60505607804	FONDAPARINUX SODIUM
60505607900	FONDAPARINUX SODIUM
60505607904	FONDAPARINUX SODIUM
60505608000	FONDAPARINUX SODIUM
60505608004	FONDAPARINUX SODIUM
60505608100	FONDAPARINUX SODIUM
60505608104	FONDAPARINUX SODIUM
65597020130	SAVAYSA
65597020205	SAVAYSA
65597020230	SAVAYSA
65597020290	SAVAYSA
65597020305	SAVAYSA
65597020330	SAVAYSA
65597020390	SAVAYSA
66203230001	ARIXTRA
66203230002	ARIXTRA
67457058200	FONDAPARINUX SODIUM
67457058210	FONDAPARINUX SODIUM
67457058300	FONDAPARINUX SODIUM
67457058304	FONDAPARINUX SODIUM
67457058400	FONDAPARINUX SODIUM
67457058406	FONDAPARINUX SODIUM
67457058500	FONDAPARINUX SODIUM
67457058508	FONDAPARINUX SODIUM
67457059200	ARIXTRA
67457059210	ARIXTRA

APPENDIX TABLE A (CONT'D): STATINS

NDC	Name	Dose
00026288351	BAYCOL	0.2 MG
00026288386	BAYCOL	0.2 MG
00026288451	BAYCOL	0.3 MG
00026288486	BAYCOL	0.3 MG
54569458900	BAYCOL	0.3 MG
00026288551	BAYCOL	0.4 MG
00026288569	BAYCOL	0.4 MG
00026288586	BAYCOL	0.4 MG
54569486100	BAYCOL	0.4 MG

54868443600	BAYCOL	0.4 MG
00026288669	BAYCOL	0.8 MG
00026288686	BAYCOL	0.8 MG
54569518000	BAYCOL	0.8 MG
54868440100	BAYCOL	0.8 MG
00002477090	LIVALO	1 MG
25208020009	ZYPITAMAG	1 MG
66869010490	LIVALO	1 MG
00071015523	LIPITOR	10 MG
00071015534	LIPITOR	10 MG
00071015540	LIPITOR	10 MG
00093505698	ATORVASTATIN CALCIUM	10 MG
00378201505	ATORVASTATIN CALCIUM	10 MG
00378201577	ATORVASTATIN CALCIUM	10 MG
00378395005	ATORVASTATIN CALCIUM	10 MG
00378395007	ATORVASTATIN CALCIUM	10 MG
00378395009	ATORVASTATIN CALCIUM	10 MG
00378395077	ATORVASTATIN CALCIUM	10 MG
00591377410	ATORVASTATIN CALCIUM	10 MG
00591377419	ATORVASTATIN CALCIUM	10 MG
00781538192	ATORVASTATIN CALCIUM	10 MG
00904629061	ATORVASTATIN CALCIUM	10 MG
10135064910	ATORVASTATIN CALCIUM	10 MG
13411011301	LIPITOR	10 MG
13411011303	LIPITOR	10 MG
13411011306	LIPITOR	10 MG
13411011309	LIPITOR	10 MG
13411011315	LIPITOR	10 MG
16714087401	ATORVASTATIN CALCIUM	10 MG
16714087402	ATORVASTATIN CALCIUM	10 MG
16714087403	ATORVASTATIN CALCIUM	10 MG
16729004417	ATORVASTATIN CALCIUM	10 MG
33261095900	ATORVASTATIN CALCIUM	10 MG
33261095930	ATORVASTATIN CALCIUM	10 MG
33261095960	ATORVASTATIN CALCIUM	10 MG
33261095990	ATORVASTATIN CALCIUM	10 MG
33358021001	LIPITOR	10 MG
33358021030	LIPITOR	10 MG
33358021060	LIPITOR	10 MG
33358021090	LIPITOR	10 MG
35356086018	ATORVASTATIN CALCIUM	10 MG
35356086030	ATORVASTATIN CALCIUM	10 MG

35356086090	ATORVASTATIN CALCIUM	10 MG
42254030730	ATORVASTATIN CALCIUM	10 MG
42254039130	ATORVASTATIN CALCIUM	10 MG
42291014310	ATORVASTATIN CALCIUM	10 MG
42291014390	ATORVASTATIN CALCIUM	10 MG
43063037330	ATORVASTATIN CALCIUM	10 MG
43063047430	ATORVASTATIN CALCIUM	10 MG
49999039230	LIPITOR	10 MG
49999039290	LIPITOR	10 MG
50090125400	ATORVASTATIN CALCIUM	10 MG
50090125401	ATORVASTATIN CALCIUM	10 MG
50090125500	ATORVASTATIN CALCIUM	10 MG
50090125501	ATORVASTATIN CALCIUM	10 MG
50268009311	ATORVASTATIN CALCIUM AVPAK	10 MG
50268009315	ATORVASTATIN CALCIUM AVPAK	10 MG
51079020801	ATORVASTATIN CALCIUM	10 MG
51079020820	ATORVASTATIN CALCIUM	10 MG
51079040901	ATORVASTATIN CALCIUM	10 MG
51079040920	ATORVASTATIN CALCIUM	10 MG
51407007810	ATORVASTATIN CALCIUM	10 MG
51407007890	ATORVASTATIN CALCIUM	10 MG
51655022624	LIPITOR	10 MG
51655061030	ATORVASTATIN CALCIUM	10 MG
51655061352	ATORVASTATIN CALCIUM	10 MG
51655061452	ATORVASTATIN CALCIUM	10 MG
52959075990	LIPITOR	10 MG
54569446600	LIPITOR	10 MG
54569446601	LIPITOR	10 MG
54569446602	LIPITOR	10 MG
54569628200	ATORVASTATIN CALCIUM	10 MG
54569628201	ATORVASTATIN CALCIUM	10 MG
54868393400	LIPITOR	10 MG
54868393401	LIPITOR	10 MG
54868393402	LIPITOR	10 MG
54868393403	LIPITOR	10 MG
54868393404	LIPITOR	10 MG
54868631900	ATORVASTATIN CALCIUM	10 MG
55111012105	ATORVASTATIN CALCIUM	10 MG
55111012190	ATORVASTATIN CALCIUM	10 MG
55175532503	LIPITOR	10 MG
55175532509	LIPITOR	10 MG
55289087030	LIPITOR	10 MG

55700047790	ATORVASTATIN CALCIUM	10 MG
55700065930	ATORVASTATIN CALCIUM	10 MG
55887062430	LIPITOR	10 MG
55887062460	LIPITOR	10 MG
55887062482	LIPITOR	10 MG
55887062490	LIPITOR	10 MG
57866861501	LIPITOR	10 MG
58864060830	LIPITOR	10 MG
59762015501	ATORVASTATIN CALCIUM	10 MG
59762015502	ATORVASTATIN CALCIUM	10 MG
60429032301	ATORVASTATIN CALCIUM	10 MG
60429032310	ATORVASTATIN CALCIUM	10 MG
60429032377	ATORVASTATIN CALCIUM	10 MG
60429032390	ATORVASTATIN CALCIUM	10 MG
60505257808	ATORVASTATIN CALCIUM	10 MG
60505257809	ATORVASTATIN CALCIUM	10 MG
60760035330	ATORVASTATIN CALCIUM	10 MG
60760035390	ATORVASTATIN CALCIUM	10 MG
60760090330	ATORVASTATIN CALCIUM	10 MG
60760090390	ATORVASTATIN CALCIUM	10 MG
61919054030	ATORVASTATIN CALCIUM	10 MG
61919095630	ATORVASTATIN CALCIUM	10 MG
61919095690	ATORVASTATIN CALCIUM	10 MG
62175089043	ATORVASTATIN CALCIUM	10 MG
62175089046	ATORVASTATIN CALCIUM	10 MG
63304082705	ATORVASTATIN CALCIUM	10 MG
63304082790	ATORVASTATIN CALCIUM	10 MG
63629144601	LIPITOR	10 MG
63629144602	LIPITOR	10 MG
66105011309	LIPITOR	10 MG
66116027630	LIPITOR	10 MG
67801030103	LIPITOR	10 MG
67877051110	ATORVASTATIN CALCIUM	10 MG
67877051190	ATORVASTATIN CALCIUM	10 MG
68071039930	LIPITOR	10 MG
68071091430	ATORVASTATIN CALCIUM	10 MG
68084009701	ATORVASTATIN CALCIUM	10 MG
68084009711	ATORVASTATIN CALCIUM	10 MG
68084056401	ATORVASTATIN CALCIUM	10 MG
68115083630	LIPITOR	10 MG
68115083690	LIPITOR	10 MG
68258600003	LIPITOR	10 MG

68258600009	LIPITOR	10 MG
68382024910	ATORVASTATIN CALCIUM	10 MG
68382024916	ATORVASTATIN CALCIUM	10 MG
68645040270	ATORVASTATIN CALCIUM	10 MG
68645045854	ATORVASTATIN CALCIUM	10 MG
68645045870	ATORVASTATIN CALCIUM	10 MG
68645048054	ATORVASTATIN CALCIUM	10 MG
68645048070	ATORVASTATIN CALCIUM	10 MG
69097089705	ATORVASTATIN CALCIUM	10 MG
69097089715	ATORVASTATIN CALCIUM	10 MG
69097094405	ATORVASTATIN CALCIUM	10 MG
69097094415	ATORVASTATIN CALCIUM	10 MG
70377002711	ATORVASTATIN CALCIUM	10 MG
70377002713	ATORVASTATIN CALCIUM	10 MG
70882010630	ATORVASTATIN CALCIUM	10 MG
70882011930	ATORVASTATIN CALCIUM	10 MG
70934007030	ATORVASTATIN CALCIUM	10 MG
71205024630	ATORVASTATIN CALCIUM	10 MG
71205024690	ATORVASTATIN CALCIUM	10 MG
71335016901	ATORVASTATIN CALCIUM	10 MG
71335016902	ATORVASTATIN CALCIUM	10 MG
71335016903	ATORVASTATIN CALCIUM	10 MG
71335016904	ATORVASTATIN CALCIUM	10 MG
71399051001	ATORVASTATIN CALCIUM	10 MG
72205002205	ATORVASTATIN CALCIUM	10 MG
72205002290	ATORVASTATIN CALCIUM	10 MG
76519107503	ATORVASTATIN CALCIUM	10 MG
00006073061	MEVACOR	10 MG
00093092606	LOVASTATIN	10 MG
00093092610	LOVASTATIN	10 MG
00093092619	LOVASTATIN	10 MG
00093092693	LOVASTATIN	10 MG
00185007001	LOVASTATIN	10 MG
00185007005	LOVASTATIN	10 MG
00185007010	LOVASTATIN	10 MG
00185007060	LOVASTATIN	10 MG
00228263306	LOVASTATIN	10 MG
00228263350	LOVASTATIN	10 MG
00378651091	LOVASTATIN	10 MG
00781132305	LOVASTATIN	10 MG
00781132360	LOVASTATIN	10 MG
00904558152	LOVASTATIN	10 MG

10544023590	LOVASTATIN	10 MG
21695053430	LOVASTATIN	10 MG
23490583802	LOVASTATIN	10 MG
23490583806	LOVASTATIN	10 MG
23490583809	LOVASTATIN	10 MG
33261054702	LOVASTATIN	10 MG
33261054730	LOVASTATIN	10 MG
33261054760	LOVASTATIN	10 MG
33261054790	LOVASTATIN	10 MG
33358022330	LOVASTATIN	10 MG
42254010630	LOVASTATIN	10 MG
42254010690	LOVASTATIN	10 MG
42291037590	LOVASTATIN	10 MG
43063049330	LOVASTATIN	10 MG
43063073190	LOVASTATIN	10 MG
45963063301	LOVASTATIN	10 MG
45963063304	LOVASTATIN	10 MG
49884075401	LOVASTATIN	10 MG
49884075402	LOVASTATIN	10 MG
49884075410	LOVASTATIN	10 MG
49999029330	LOVASTATIN	10 MG
49999029360	LOVASTATIN	10 MG
49999029390	LOVASTATIN	10 MG
50090256300	LOVASTATIN	10 MG
50090256301	LOVASTATIN	10 MG
50090326800	LOVASTATIN	10 MG
50090326801	LOVASTATIN	10 MG
50090339601	LOVASTATIN	10 MG
50268051011	LOVASTATIN AVPAK	10 MG
50268051015	LOVASTATIN AVPAK	10 MG
51079097401	LOVASTATIN	10 MG
51079097420	LOVASTATIN	10 MG
51655001326	LOVASTATIN	10 MG
52959097400	LOVASTATIN	10 MG
52959097430	LOVASTATIN	10 MG
53217030402	LOVASTATIN	10 MG
53217030430	LOVASTATIN	10 MG
53217030490	LOVASTATIN	10 MG
53489060701	LOVASTATIN	10 MG
53489060706	LOVASTATIN	10 MG
54458084616	LOVASTATIN	10 MG
54458091610	LOVASTATIN	10 MG

54458093810	LOVASTATIN	10 MG
54458093816	LOVASTATIN	10 MG
54458098410	LOVASTATIN	10 MG
54569458400	MEVACOR	10 MG
54569534500	LOVASTATIN	10 MG
54569534501	LOVASTATIN	10 MG
54868196800	MEVACOR	10 MG
54868459300	LOVASTATIN	10 MG
54868459301	LOVASTATIN	10 MG
54868459302	LOVASTATIN	10 MG
55887035030	LOVASTATIN	10 MG
57866640001	LOVASTATIN	10 MG
58016097900	LOVASTATIN	10 MG
58016097902	LOVASTATIN	10 MG
58016097920	LOVASTATIN	10 MG
58016097930	LOVASTATIN	10 MG
58016097960	LOVASTATIN	10 MG
58016097990	LOVASTATIN	10 MG
58864078130	LOVASTATIN	10 MG
60429024810	LOVASTATIN	10 MG
60429024860	LOVASTATIN	10 MG
60429040010	LOVASTATIN	10 MG
60429040060	LOVASTATIN	10 MG
60429040090	LOVASTATIN	10 MG
60505017700	LOVASTATIN	10 MG
60760037130	LOVASTATIN	10 MG
61442014101	LOVASTATIN	10 MG
61442014110	LOVASTATIN	10 MG
61442014160	LOVASTATIN	10 MG
61919031190	LOVASTATIN	10 MG
62022062730	ALTOPREV	10 MG
62037079101	LOVASTATIN	10 MG
62037079160	LOVASTATIN	10 MG
63187081430	LOVASTATIN	10 MG
63187081490	LOVASTATIN	10 MG
63629358301	LOVASTATIN	10 MG
63629358302	LOVASTATIN	10 MG
63629358303	LOVASTATIN	10 MG
63739028010	LOVASTATIN	10 MG
63739028015	LOVASTATIN	10 MG
66336060205	LOVASTATIN	10 MG
66336060230	LOVASTATIN	10 MG

66336060290	LOVASTATIN	10 MG
68001021300	LOVASTATIN	10 MG
68001021306	LOVASTATIN	10 MG
68001021308	LOVASTATIN	10 MG
68001031400	LOVASTATIN	10 MG
68001031408	LOVASTATIN	10 MG
68084013101	LOVASTATIN	10 MG
68084055801	LOVASTATIN	10 MG
68084055811	LOVASTATIN	10 MG
68115021830	LOVASTATIN	10 MG
68180046701	LOVASTATIN	10 MG
68180046703	LOVASTATIN	10 MG
68180046707	LOVASTATIN	10 MG
68645057690	LOVASTATIN	10 MG
00003015450	PRAVACHOL	10 MG
00003015451	PRAVACHOL	10 MG
00003515405	PRAVACHOL	10 MG
00003515406	PRAVACHOL	10 MG
00093077110	PRAVASTATIN SODIUM	10 MG
00093077198	PRAVASTATIN SODIUM	10 MG
00378055277	PRAVASTATIN SODIUM	10 MG
00378821010	PRAVASTATIN SODIUM	10 MG
00378821077	PRAVASTATIN SODIUM	10 MG
00591001310	PRAVASTATIN SODIUM	10 MG
00591001319	PRAVASTATIN SODIUM	10 MG
00781523110	PRAVASTATIN SODIUM	10 MG
00781523192	PRAVASTATIN SODIUM	10 MG
00904589161	PRAVASTATIN SODIUM	10 MG
00904611361	PRAVASTATIN SODIUM	10 MG
10544044030	PRAVASTATIN SODIUM	10 MG
12280003890	PRAVACHOL	10 MG
16252052690	PRAVASTATIN SODIUM	10 MG
16729000815	PRAVASTATIN SODIUM	10 MG
16729000816	PRAVASTATIN SODIUM	10 MG
21695017830	PRAVASTATIN SODIUM	10 MG
23490935003	PRAVASTATIN SODIUM	10 MG
23490935006	PRAVASTATIN SODIUM	10 MG
23490935009	PRAVASTATIN SODIUM	10 MG
35356092130	PRAVASTATIN SODIUM	10 MG
42254042430	PRAVASTATIN SODIUM	10 MG
42291066510	PRAVASTATIN SODIUM	10 MG
42291066590	PRAVASTATIN SODIUM	10 MG

42549070830	PRAVASTATIN SODIUM	10 MG
49884017609	PRAVASTATIN SODIUM	10 MG
49884017610	PRAVASTATIN SODIUM	10 MG
50090159400	PRAVASTATIN SODIUM	10 MG
50090159401	PRAVASTATIN SODIUM	10 MG
50090325800	PRAVASTATIN SODIUM	10 MG
50090325801	PRAVASTATIN SODIUM	10 MG
50111076117	PRAVASTATIN SODIUM	10 MG
50268067211	PRAVASTATIN SODIUM AVPAK	10 MG
50268067215	PRAVASTATIN SODIUM AVPAK	10 MG
53217020330	PRAVASTATIN SODIUM	10 MG
53217020390	PRAVASTATIN SODIUM	10 MG
54458092710	PRAVASTATIN SODIUM	10 MG
54458092712	PRAVASTATIN SODIUM	10 MG
54458092716	PRAVASTATIN SODIUM	10 MG
54458098709	PRAVASTATIN SODIUM	10 MG
54569384000	PRAVACHOL	10 MG
54569434600	PRAVACHOL	10 MG
54569434601	PRAVACHOL	10 MG
54569642800	PRAVASTATIN SODIUM	10 MG
54569642801	PRAVASTATIN SODIUM	10 MG
54569859800	PRAVACHOL	10 MG
54868228701	PRAVACHOL	10 MG
54868228702	PRAVACHOL	10 MG
54868557600	PRAVASTATIN SODIUM	10 MG
54868557601	PRAVASTATIN SODIUM	10 MG
55111022905	PRAVASTATIN SODIUM	10 MG
55111022990	PRAVASTATIN SODIUM	10 MG
55289010430	PRAVACHOL	10 MG
57237016405	PRAVASTATIN SODIUM	10 MG
57237016490	PRAVASTATIN SODIUM	10 MG
58864065330	PRAVACHOL	10 MG
60429036705	PRAVASTATIN SODIUM	10 MG
60429036745	PRAVASTATIN SODIUM	10 MG
60429036790	PRAVASTATIN SODIUM	10 MG
60505016805	PRAVASTATIN SODIUM	10 MG
60505016809	PRAVASTATIN SODIUM	10 MG
60687016901	PRAVASTATIN SODIUM	10 MG
60687016911	PRAVASTATIN SODIUM	10 MG
63304059590	PRAVASTATIN SODIUM	10 MG
63629458801	PRAVASTATIN SODIUM	10 MG
66105012001	PRAVACHOL	10 MG

66105012003	PRAVACHOL	10 MG
66105012006	PRAVACHOL	10 MG
66105012009	PRAVACHOL	10 MG
66105012015	PRAVACHOL	10 MG
66105515405	PRAVACHOL	10 MG
68084018601	PRAVASTATIN SODIUM	10 MG
68084050001	PRAVASTATIN SODIUM	10 MG
68084050011	PRAVASTATIN SODIUM	10 MG
68180048502	PRAVASTATIN SODIUM	10 MG
68180048509	PRAVASTATIN SODIUM	10 MG
68258604903	PRAVASTATIN SODIUM	10 MG
68382007005	PRAVASTATIN SODIUM	10 MG
68382007016	PRAVASTATIN SODIUM	10 MG
68462019505	PRAVASTATIN SODIUM	10 MG
68462019590	PRAVASTATIN SODIUM	10 MG
68788741303	PRAVASTATIN SODIUM	10 MG
68788741306	PRAVASTATIN SODIUM	10 MG
68788741309	PRAVASTATIN SODIUM	10 MG
71335005601	PRAVASTATIN SODIUM	10 MG
00093757198	ROSUVASTATIN CALCIUM	10 MG
00310075139	CRESTOR	10 MG
00310075190	CRESTOR	10 MG
00378220377	ROSUVASTATIN CALCIUM	10 MG
00781540192	ROSUVASTATIN CALCIUM	10 MG
00904660361	ROSUVASTATIN CALCIUM	10 MG
00904677961	ROSUVASTATIN CALCIUM	10 MG
12280016415	CRESTOR	10 MG
12280016490	CRESTOR	10 MG
13668018030	ROSUVASTATIN CALCIUM	10 MG
13668018090	ROSUVASTATIN CALCIUM	10 MG
16252061630	ROSUVASTATIN CALCIUM	10 MG
16252061650	ROSUVASTATIN CALCIUM	10 MG
16252061690	ROSUVASTATIN CALCIUM	10 MG
16590041130	CRESTOR	10 MG
16729028515	ROSUVASTATIN CALCIUM	10 MG
16729028517	ROSUVASTATIN CALCIUM	10 MG
21695028790	CRESTOR	10 MG
27808015601	ROSUVASTATIN CALCIUM	10 MG
31722088390	ROSUVASTATIN CALCIUM	10 MG
42291074390	ROSUVASTATIN CALCIUM	10 MG
42292003001	ROSUVASTATIN CALCIUM	10 MG
42292003020	ROSUVASTATIN CALCIUM	10 MG

47335058381	ROSUVASTATIN CALCIUM	10 MG
47335098583	EZALLOR SPRINKLE	10 MG
47463009630	CRESTOR	10 MG
49884026109	ROSUVASTATIN CALCIUM	10 MG
49999087330	CRESTOR	10 MG
49999087390	CRESTOR	10 MG
50090245101	ROSUVASTATIN CALCIUM	10 MG
50090272300	ROSUVASTATIN CALCIUM	10 MG
50090272301	ROSUVASTATIN CALCIUM	10 MG
50090317700	ROSUVASTATIN CALCIUM	10 MG
50090317701	ROSUVASTATIN CALCIUM	10 MG
50268070911	ROSUVASTATIN CALCIUM AVPAK	10 MG
50268070915	ROSUVASTATIN CALCIUM AVPAK	10 MG
51407015490	ROSUVASTATIN CALCIUM	10 MG
53217029530	ROSUVASTATIN CALCIUM	10 MG
53217029590	ROSUVASTATIN CALCIUM	10 MG
54569560000	CRESTOR	10 MG
54569560001	CRESTOR	10 MG
54569667400	ROSUVASTATIN CALCIUM	10 MG
54569667401	ROSUVASTATIN CALCIUM	10 MG
54868496300	CRESTOR	10 MG
54868496301	CRESTOR	10 MG
54868496302	CRESTOR	10 MG
54868496303	CRESTOR	10 MG
55048009630	CRESTOR	10 MG
55289093530	CRESTOR	10 MG
55700051618	ROSUVASTATIN CALCIUM	10 MG
55700057430	ROSUVASTATIN CALCIUM	10 MG
57237016990	ROSUVASTATIN CALCIUM	10 MG
57237016999	ROSUVASTATIN CALCIUM	10 MG
58016003700	CRESTOR	10 MG
58016003730	CRESTOR	10 MG
58016003760	CRESTOR	10 MG
58016003790	CRESTOR	10 MG
60429084390	ROSUVASTATIN CALCIUM	10 MG
60505450309	ROSUVASTATIN CALCIUM	10 MG
60687024501	ROSUVASTATIN CALCIUM	10 MG
60687024511	ROSUVASTATIN CALCIUM	10 MG
63187086430	ROSUVASTATIN CALCIUM	10 MG
63187086490	ROSUVASTATIN CALCIUM	10 MG
63629338101	CRESTOR	10 MG
63629338102	CRESTOR	10 MG

63629338103	CRESTOR	10 MG
63629338104	CRESTOR	10 MG
65862029490	ROSUVASTATIN CALCIUM	10 MG
66105098803	CRESTOR	10 MG
67877044005	ROSUVASTATIN CALCIUM	10 MG
67877044090	ROSUVASTATIN CALCIUM	10 MG
68071043330	CRESTOR	10 MG
68258601603	CRESTOR	10 MG
68462026290	ROSUVASTATIN CALCIUM	10 MG
70377000712	ROSUVASTATIN CALCIUM	10 MG
70377000713	ROSUVASTATIN CALCIUM	10 MG
71205000830	ROSUVASTATIN CALCIUM	10 MG
71205005230	ROSUVASTATIN CALCIUM	10 MG
71205005290	ROSUVASTATIN CALCIUM	10 MG
71335060601	ROSUVASTATIN CALCIUM	10 MG
71335060602	ROSUVASTATIN CALCIUM	10 MG
72205000390	ROSUVASTATIN CALCIUM	10 MG
72205000399	ROSUVASTATIN CALCIUM	10 MG
76519116209	ROSUVASTATIN CALCIUM	10 MG
00006073528	ZOCOR	10 MG
00006073531	ZOCOR	10 MG
00006073554	ZOCOR	10 MG
00006073561	ZOCOR	10 MG
00006073582	ZOCOR	10 MG
00006073587	ZOCOR	10 MG
00093715310	SIMVASTATIN	10 MG
00093715319	SIMVASTATIN	10 MG
00093715331	SIMVASTATIN	10 MG
00093715356	SIMVASTATIN	10 MG
00093715393	SIMVASTATIN	10 MG
00093715398	SIMVASTATIN	10 MG
00406206603	SIMVASTATIN	10 MG
00406206605	SIMVASTATIN	10 MG
00406206610	SIMVASTATIN	10 MG
00406206660	SIMVASTATIN	10 MG
00406206690	SIMVASTATIN	10 MG
00781507131	SIMVASTATIN	10 MG
00781507192	SIMVASTATIN	10 MG
00904580061	SIMVASTATIN	10 MG
13411016201	ZOCOR	10 MG
13411016203	ZOCOR	10 MG
13411016206	ZOCOR	10 MG

13411016209	ZOCOR	10 MG
13411016215	ZOCOR	10 MG
16252050630	SIMVASTATIN	10 MG
16252050650	SIMVASTATIN	10 MG
16252050690	SIMVASTATIN	10 MG
16714068201	SIMVASTATIN	10 MG
16714068202	SIMVASTATIN	10 MG
16714068203	SIMVASTATIN	10 MG
16729000410	SIMVASTATIN	10 MG
16729000415	SIMVASTATIN	10 MG
16729000417	SIMVASTATIN	10 MG
21695073930	SIMVASTATIN	10 MG
21695073990	SIMVASTATIN	10 MG
23490935303	SIMVASTATIN	10 MG
23490935306	SIMVASTATIN	10 MG
23490935309	SIMVASTATIN	10 MG
24658021110	SIMVASTATIN	10 MG
24658021130	SIMVASTATIN	10 MG
24658021145	SIMVASTATIN	10 MG
24658021190	SIMVASTATIN	10 MG
24658030110	SIMVASTATIN	10 MG
24658030115	SIMVASTATIN	10 MG
24658030130	SIMVASTATIN	10 MG
24658030145	SIMVASTATIN	10 MG
24658030190	SIMVASTATIN	10 MG
31722051110	SIMVASTATIN	10 MG
31722051190	SIMVASTATIN	10 MG
33261054600	SIMVASTATIN	10 MG
33261054602	SIMVASTATIN	10 MG
33261054630	SIMVASTATIN	10 MG
33261054660	SIMVASTATIN	10 MG
33261054690	SIMVASTATIN	10 MG
35356060430	SIMVASTATIN	10 MG
42254012930	SIMVASTATIN	10 MG
42254012990	SIMVASTATIN	10 MG
42549071590	SIMVASTATIN	10 MG
42571001005	SIMVASTATIN	10 MG
42571001090	SIMVASTATIN	10 MG
43063016230	SIMVASTATIN	10 MG
43063072730	SIMVASTATIN	10 MG
43063072790	SIMVASTATIN	10 MG
45802009301	SIMVASTATIN	10 MG

45802009365	SIMVASTATIN	10 MG
45802009375	SIMVASTATIN	10 MG
50090127700	SIMVASTATIN	10 MG
50090127701	SIMVASTATIN	10 MG
50268071311	SIMVASTATIN AVPAK	10 MG
50268071315	SIMVASTATIN AVPAK	10 MG
50742013710	SIMVASTATIN	10 MG
51079045401	SIMVASTATIN	10 MG
51079045420	SIMVASTATIN	10 MG
51079068601	SIMVASTATIN	10 MG
51079068620	SIMVASTATIN	10 MG
52343002299	SIMVASTATIN	10 MG
52959098830	SIMVASTATIN	10 MG
54458090010	SIMVASTATIN	10 MG
54458093410	SIMVASTATIN	10 MG
54458093416	SIMVASTATIN	10 MG
54569418000	ZOCOR	10 MG
54569418001	ZOCOR	10 MG
54569630200	SIMVASTATIN	10 MG
54569630201	SIMVASTATIN	10 MG
54868263900	ZOCOR	10 MG
54868263901	ZOCOR	10 MG
54868562700	SIMVASTATIN	10 MG
54868562701	SIMVASTATIN	10 MG
55045365508	SIMVASTATIN	10 MG
55111019805	SIMVASTATIN	10 MG
55111019830	SIMVASTATIN	10 MG
55111019890	SIMVASTATIN	10 MG
55111073510	SIMVASTATIN	10 MG
55111073530	SIMVASTATIN	10 MG
55111073590	SIMVASTATIN	10 MG
55289033814	SIMVASTATIN	10 MG
55289033830	SIMVASTATIN	10 MG
55289033890	SIMVASTATIN	10 MG
55700022330	SIMVASTATIN	10 MG
55700051590	SIMVASTATIN	10 MG
55887086130	SIMVASTATIN	10 MG
55887086160	SIMVASTATIN	10 MG
55887086190	SIMVASTATIN	10 MG
57866798601	ZOCOR	10 MG
58016000800	SIMVASTATIN	10 MG
58016000830	SIMVASTATIN	10 MG

58016000860	SIMVASTATIN	10 MG
58016000890	SIMVASTATIN	10 MG
58016036400	ZOCOR	10 MG
58016036430	ZOCOR	10 MG
58016036460	ZOCOR	10 MG
58016036490	ZOCOR	10 MG
60760037930	SIMVASTATIN	10 MG
60760037990	SIMVASTATIN	10 MG
63304079010	SIMVASTATIN	10 MG
63304079030	SIMVASTATIN	10 MG
63304079090	SIMVASTATIN	10 MG
63739042010	SIMVASTATIN	10 MG
63739043610	SIMVASTATIN	10 MG
63739057110	SIMVASTATIN	10 MG
65862005126	SIMVASTATIN	10 MG
65862005130	SIMVASTATIN	10 MG
65862005190	SIMVASTATIN	10 MG
65862005199	SIMVASTATIN	10 MG
66267126001	SIMVASTATIN	10 MG
68071071630	SIMVASTATIN	10 MG
68071171109	SIMVASTATIN	10 MG
68084016201	SIMVASTATIN	10 MG
68084051101	SIMVASTATIN	10 MG
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68115072030	ZOCOR	10 MG
68180047801	SIMVASTATIN	10 MG
68180047802	SIMVASTATIN	10 MG
68180047803	SIMVASTATIN	10 MG
68258600903	SIMVASTATIN	10 MG
68258600909	SIMVASTATIN	10 MG
68382006605	SIMVASTATIN	10 MG
68382006606	SIMVASTATIN	10 MG
68382006610	SIMVASTATIN	10 MG
68382006614	SIMVASTATIN	10 MG
68382006616	SIMVASTATIN	10 MG
68382006624	SIMVASTATIN	10 MG
70377000212	SIMVASTATIN	10 MG
70377000214	SIMVASTATIN	10 MG
70377000215	SIMVASTATIN	10 MG
00069216030	CADUET	10 MG-10 MG
00378451705	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG

00378451793	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
00378616805	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
00378616877	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
00378616893	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
12280039730	CADUET	10 MG-10 MG
43598032130	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
43598032190	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
54569588100	CADUET	10 MG-10 MG
54868556700	CADUET	10 MG-10 MG
59762673001	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
59762673005	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
59762673007	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
63304059030	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-10 MG
66582032030	LIPTRUZET	10 MG-10 MG
66582032054	LIPTRUZET	10 MG-10 MG
00115138503	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
00115138508	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
00115138510	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
12280038630	VYTORIN	10 MG-10 MG
43598058310	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
43598058330	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
43598058390	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
43598074210	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
43598074230	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
43598074290	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
45963056508	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
45963056530	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
51407019010	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
51407019030	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
51407019090	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
54569576800	VYTORIN	10 MG-10 MG
54868525000	VYTORIN	10 MG-10 MG
60429087910	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
60429087930	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
60429087990	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
62559070030	EZETIMIBE-SIMVASTATIN	10 MG-10 MG

62559070090	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
66582031128	VYTORIN	10 MG-10 MG
66582031131	VYTORIN	10 MG-10 MG
66582031154	VYTORIN	10 MG-10 MG
66582031182	VYTORIN	10 MG-10 MG
67877050730	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
67877050790	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
69238115503	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
69238115509	EZETIMIBE-SIMVASTATIN	10 MG-10 MG
00006075331	JUVISYNC	10 MG-100 MG
00006075354	JUVISYNC	10 MG-100 MG
00006075382	JUVISYNC	10 MG-100 MG
00069218030	CADUET	10 MG-20 MG
00378451805	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
00378451893	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
00378616905	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
00378616977	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
00378616993	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
12280039830	CADUET	10 MG-20 MG
43598031830	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
43598031890	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
54569595100	CADUET	10 MG-20 MG
54868520900	CADUET	10 MG-20 MG
54868520901	CADUET	10 MG-20 MG
59762673101	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
59762673105	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
59762673107	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
63304059130	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-20 MG
00115138603	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
00115138608	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
00115138610	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
12280038530	VYTORIN	10 MG-20 MG
12280038590	VYTORIN	10 MG-20 MG
21695032530	VYTORIN	10 MG-20 MG
43598058410	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
43598058430	EZETIMIBE-SIMVASTATIN	10 MG-20 MG

43598058490	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
43598074410	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
43598074430	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
43598074490	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
45963056608	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
45963056630	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
49999095730	VYTORIN	10 MG-20 MG
51407019110	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
51407019130	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
51407019190	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
54569576600	VYTORIN	10 MG-20 MG
54868518700	VYTORIN	10 MG-20 MG
54868518701	VYTORIN	10 MG-20 MG
54868518702	VYTORIN	10 MG-20 MG
55048082130	VYTORIN	10 MG-20 MG
55289098021	VYTORIN	10 MG-20 MG
55887088230	VYTORIN	10 MG-20 MG
60429088010	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
60429088030	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
60429088090	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
62559070130	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
62559070190	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
66582031228	VYTORIN	10 MG-20 MG
66582031231	VYTORIN	10 MG-20 MG
66582031254	VYTORIN	10 MG-20 MG
66582031282	VYTORIN	10 MG-20 MG
66582031287	VYTORIN	10 MG-20 MG
67877050830	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
67877050890	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
68258697003	VYTORIN	10 MG-20 MG
69238115603	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
69238115609	EZETIMIBE-SIMVASTATIN	10 MG-20 MG
00069225030	CADUET	10 MG-40 MG
00378451905	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
00378451993	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
00378617005	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
00378617077	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
00378617093	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG

43598031530	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
43598031590	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
54569609900	CADUET	10 MG-40 MG
54868520000	CADUET	10 MG-40 MG
54868520001	CADUET	10 MG-40 MG
59762673201	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
59762673205	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
59762673207	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
63304050030	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-40 MG
00115138702	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
00115138708	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
00115138710	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
12280018130	VYTORIN	10 MG-40 MG
12280018190	VYTORIN	10 MG-40 MG
21695033930	VYTORIN	10 MG-40 MG
43598058510	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
43598058530	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
43598058590	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
43598074305	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
43598074330	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
43598074390	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
45963056708	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
45963056730	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
49999095830	VYTORIN	10 MG-40 MG
51407019205	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
51407019230	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
51407019290	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
54569564800	VYTORIN	10 MG-40 MG
54868518900	VYTORIN	10 MG-40 MG
54868518901	VYTORIN	10 MG-40 MG
55048082230	VYTORIN	10 MG-40 MG
55289028030	VYTORIN	10 MG-40 MG
55887033330	VYTORIN	10 MG-40 MG
60429088105	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
60429088110	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
60429088130	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
60429088190	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
62559070230	EZETIMIBE-SIMVASTATIN	10 MG-40 MG

62559070290	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
66582031331	VYTORIN	10 MG-40 MG
66582031352	VYTORIN	10 MG-40 MG
66582031354	VYTORIN	10 MG-40 MG
66582031374	VYTORIN	10 MG-40 MG
66582031386	VYTORIN	10 MG-40 MG
67877050930	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
67877050990	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
68258698403	VYTORIN	10 MG-40 MG
69238115703	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
69238115709	EZETIMIBE-SIMVASTATIN	10 MG-40 MG
00006053331	JUVISYNC	10 MG-50 MG
00006053354	JUVISYNC	10 MG-50 MG
00069227030	CADUET	10 MG-80 MG
00378452093	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-80 MG
00378617177	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-80 MG
00378617193	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-80 MG
43598031330	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-80 MG
54868552300	CADUET	10 MG-80 MG
54868552301	CADUET	10 MG-80 MG
54868633500	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-80 MG
59762673301	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-80 MG
63304060330	AMLODIPINE BESYLATE-ATORVASTATIN CA	10 MG-80 MG
00115138802	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
00115138808	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
00115138810	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
21695082730	VYTORIN	10 MG-80 MG
43598058610	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
43598058630	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
43598058690	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
43598074530	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
43598074590	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
45963056808	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
45963056830	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
51407019305	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
51407019330	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
51407019390	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
54868525900	VYTORIN	10 MG-80 MG

54868525901	VYTORIN	10 MG-80 MG
55048082330	VYTORIN	10 MG-80 MG
55289052030	VYTORIN	10 MG-80 MG
60429088205	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
60429088230	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
60429088290	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
62559070330	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
62559070390	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
66582031531	VYTORIN	10 MG-80 MG
66582031552	VYTORIN	10 MG-80 MG
66582031554	VYTORIN	10 MG-80 MG
66582031566	VYTORIN	10 MG-80 MG
66582031574	VYTORIN	10 MG-80 MG
67877051030	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
67877051090	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
69238115803	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
69238115809	EZETIMIBE-SIMVASTATIN	10 MG-80 MG
00074331690	SIMCOR	1000 MG-20 MG
00074345590	SIMCOR	1000 MG-20 MG
54868590400	SIMCOR	1000 MG-20 MG
54868590401	SIMCOR	1000 MG-20 MG
00074345790	SIMCOR	1000 MG-40 MG
54868616900	SIMCOR	1000 MG-40 MG
00002477190	LIVALO	2 MG
25208020109	ZYPITAMAG	2 MG
66869020407	LIVALO	2 MG
66869020490	LIVALO	2 MG
00069296030	CADUET	2.5 MG-10 MG
00378451093	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-10 MG
00378616177	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-10 MG
00378616193	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-10 MG
43598032330	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-10 MG
59762671001	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-10 MG
63304050130	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-10 MG
00069297030	CADUET	2.5 MG-20 MG
00378451193	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-20 MG
00378616277	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-20 MG

00378616293	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-20 MG
43598032030	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-20 MG
59762671101	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-20 MG
63304050230	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-20 MG
00069298030	CADUET	2.5 MG-40 MG
00378451293	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-40 MG
00378616377	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-40 MG
00378616393	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-40 MG
43598031730	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-40 MG
54868569900	CADUET	2.5 MG-40 MG
59762671201	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-40 MG
63304050330	AMLODIPINE BESYLATE-ATORVASTATIN CA	2.5 MG-40 MG
00071015623	LIPITOR	20 MG
00071015640	LIPITOR	20 MG
00071015694	LIPITOR	20 MG
00093505998	ATORVASTATIN CALCIUM	20 MG
00378201705	ATORVASTATIN CALCIUM	20 MG
00378201777	ATORVASTATIN CALCIUM	20 MG
00378395105	ATORVASTATIN CALCIUM	20 MG
00378395107	ATORVASTATIN CALCIUM	20 MG
00378395109	ATORVASTATIN CALCIUM	20 MG
00378395177	ATORVASTATIN CALCIUM	20 MG
00591377510	ATORVASTATIN CALCIUM	20 MG
00591377519	ATORVASTATIN CALCIUM	20 MG
00781538292	ATORVASTATIN CALCIUM	20 MG
00904629161	ATORVASTATIN CALCIUM	20 MG
10135065005	ATORVASTATIN CALCIUM	20 MG
13411011401	LIPITOR	20 MG
13411011403	LIPITOR	20 MG
13411011406	LIPITOR	20 MG
13411011409	LIPITOR	20 MG
13411011415	LIPITOR	20 MG
16714087501	ATORVASTATIN CALCIUM	20 MG
16714087502	ATORVASTATIN CALCIUM	20 MG
16714087503	ATORVASTATIN CALCIUM	20 MG
16729004517	ATORVASTATIN CALCIUM	20 MG

33261097200	ATORVASTATIN CALCIUM	20 MG
33261097230	ATORVASTATIN CALCIUM	20 MG
33261097260	ATORVASTATIN CALCIUM	20 MG
33261097290	ATORVASTATIN CALCIUM	20 MG
33261097299	ATORVASTATIN CALCIUM	20 MG
35356089418	ATORVASTATIN CALCIUM	20 MG
35356089430	ATORVASTATIN CALCIUM	20 MG
35356089490	ATORVASTATIN CALCIUM	20 MG
42254026130	ATORVASTATIN CALCIUM	20 MG
42254026145	ATORVASTATIN CALCIUM	20 MG
42254026190	ATORVASTATIN CALCIUM	20 MG
42254038230	ATORVASTATIN CALCIUM	20 MG
42254038290	ATORVASTATIN CALCIUM	20 MG
42291014410	ATORVASTATIN CALCIUM	20 MG
42291014490	ATORVASTATIN CALCIUM	20 MG
43063049630	ATORVASTATIN CALCIUM	20 MG
43063049660	ATORVASTATIN CALCIUM	20 MG
49999046730	LIPITOR	20 MG
49999046790	LIPITOR	20 MG
50090125700	ATORVASTATIN CALCIUM	20 MG
50090125701	ATORVASTATIN CALCIUM	20 MG
50090125800	ATORVASTATIN CALCIUM	20 MG
50090125801	ATORVASTATIN CALCIUM	20 MG
50268009411	ATORVASTATIN CALCIUM AVPAK	20 MG
50268009415	ATORVASTATIN CALCIUM AVPAK	20 MG
50436998803	ATORVASTATIN CALCIUM	20 MG
51079020901	ATORVASTATIN CALCIUM	20 MG
51079020920	ATORVASTATIN CALCIUM	20 MG
51079041001	ATORVASTATIN CALCIUM	20 MG
51079041020	ATORVASTATIN CALCIUM	20 MG
51407007905	ATORVASTATIN CALCIUM	20 MG
51407007990	ATORVASTATIN CALCIUM	20 MG
51655092030	ATORVASTATIN CALCIUM	20 MG
52959076090	LIPITOR	20 MG
53217020930	ATORVASTATIN CALCIUM	20 MG
53217020960	ATORVASTATIN CALCIUM	20 MG
53217020990	ATORVASTATIN CALCIUM	20 MG
53217020999	ATORVASTATIN CALCIUM	20 MG
54569446700	LIPITOR	20 MG
54569446701	LIPITOR	20 MG
54569628300	ATORVASTATIN CALCIUM	20 MG
54569628301	ATORVASTATIN CALCIUM	20 MG

54868394600	LIPITOR	20 MG
54868394601	LIPITOR	20 MG
54868394602	LIPITOR	20 MG
54868394603	LIPITOR	20 MG
54868394604	LIPITOR	20 MG
54868632000	ATORVASTATIN CALCIUM	20 MG
55111012205	ATORVASTATIN CALCIUM	20 MG
55111012290	ATORVASTATIN CALCIUM	20 MG
55289080030	LIPITOR	20 MG
55700054830	ATORVASTATIN CALCIUM	20 MG
55700054890	ATORVASTATIN CALCIUM	20 MG
55887073030	LIPITOR	20 MG
55887073060	LIPITOR	20 MG
55887073090	LIPITOR	20 MG
58864068530	LIPITOR	20 MG
59762015601	ATORVASTATIN CALCIUM	20 MG
59762015602	ATORVASTATIN CALCIUM	20 MG
60429032401	ATORVASTATIN CALCIUM	20 MG
60429032410	ATORVASTATIN CALCIUM	20 MG
60429032477	ATORVASTATIN CALCIUM	20 MG
60429032490	ATORVASTATIN CALCIUM	20 MG
60505257908	ATORVASTATIN CALCIUM	20 MG
60505257909	ATORVASTATIN CALCIUM	20 MG
60760035430	ATORVASTATIN CALCIUM	20 MG
60760035490	ATORVASTATIN CALCIUM	20 MG
60760090430	ATORVASTATIN CALCIUM	20 MG
61919025830	ATORVASTATIN CALCIUM	20 MG
61919025890	ATORVASTATIN CALCIUM	20 MG
61919063230	ATORVASTATIN CALCIUM	20 MG
61919091630	ATORVASTATIN CALCIUM	20 MG
62175089143	ATORVASTATIN CALCIUM	20 MG
62175089146	ATORVASTATIN CALCIUM	20 MG
63304082805	ATORVASTATIN CALCIUM	20 MG
63304082890	ATORVASTATIN CALCIUM	20 MG
63629144701	LIPITOR	20 MG
63629484901	ATORVASTATIN CALCIUM	20 MG
63629484902	ATORVASTATIN CALCIUM	20 MG
63629484903	ATORVASTATIN CALCIUM	20 MG
66105011409	LIPITOR	20 MG
67801040230	LIPITOR	20 MG
67877051210	ATORVASTATIN CALCIUM	20 MG
67877051290	ATORVASTATIN CALCIUM	20 MG

68071015430	LIPITOR	20 MG
68071091530	ATORVASTATIN CALCIUM	20 MG
68084009801	ATORVASTATIN CALCIUM	20 MG
68084009811	ATORVASTATIN CALCIUM	20 MG
68084056501	ATORVASTATIN CALCIUM	20 MG
68115049430	LIPITOR	20 MG
68115049460	LIPITOR	20 MG
68115080090	LIPITOR	20 MG
68258600103	LIPITOR	20 MG
68258600109	LIPITOR	20 MG
68382025010	ATORVASTATIN CALCIUM	20 MG
68382025016	ATORVASTATIN CALCIUM	20 MG
68645040370	ATORVASTATIN CALCIUM	20 MG
68645045954	ATORVASTATIN CALCIUM	20 MG
68645045970	ATORVASTATIN CALCIUM	20 MG
68645048154	ATORVASTATIN CALCIUM	20 MG
68645048170	ATORVASTATIN CALCIUM	20 MG
68645048254	ATORVASTATIN CALCIUM	20 MG
69097089805	ATORVASTATIN CALCIUM	20 MG
69097089812	ATORVASTATIN CALCIUM	20 MG
69097094505	ATORVASTATIN CALCIUM	20 MG
69097094512	ATORVASTATIN CALCIUM	20 MG
70377002811	ATORVASTATIN CALCIUM	20 MG
70377002813	ATORVASTATIN CALCIUM	20 MG
70882010230	ATORVASTATIN CALCIUM	20 MG
70882012030	ATORVASTATIN CALCIUM	20 MG
70934006930	ATORVASTATIN CALCIUM	20 MG
71205024730	ATORVASTATIN CALCIUM	20 MG
71205024790	ATORVASTATIN CALCIUM	20 MG
71335000401	ATORVASTATIN CALCIUM	20 MG
71335000402	ATORVASTATIN CALCIUM	20 MG
71335000403	ATORVASTATIN CALCIUM	20 MG
71335000404	ATORVASTATIN CALCIUM	20 MG
71335000405	ATORVASTATIN CALCIUM	20 MG
71399052005	ATORVASTATIN CALCIUM	20 MG
72205002305	ATORVASTATIN CALCIUM	20 MG
72205002390	ATORVASTATIN CALCIUM	20 MG
76519107809	ATORVASTATIN CALCIUM	20 MG
00078017605	LESCOL	20 MG
00078017615	LESCOL	20 MG
00093744201	FLUVASTATIN	20 MG
00093744256	FLUVASTATIN	20 MG

00378802077	FLUVASTATIN	20 MG
00378802093	FLUVASTATIN	20 MG
13411011101	LESCOL	20 MG
13411011102	LESCOL	20 MG
13411011103	LESCOL	20 MG
13411011106	LESCOL	20 MG
13411011110	LESCOL	20 MG
54569382100	LESCOL	20 MG
54569382101	LESCOL	20 MG
54868332900	LESCOL	20 MG
55175300203	LESCOL	20 MG
55289074060	LESCOL	20 MG
66105014701	LESCOL	20 MG
66105014703	LESCOL	20 MG
66105014706	LESCOL	20 MG
66105014709	LESCOL	20 MG
66105014710	LESCOL	20 MG
00006073128	MEVACOR	20 MG
00006073137	MEVACOR	20 MG
00006073161	MEVACOR	20 MG
00006073178	MEVACOR	20 MG
00006073182	MEVACOR	20 MG
00006073187	MEVACOR	20 MG
00006073194	MEVACOR	20 MG
00006073198	MEVACOR	20 MG
00093057606	LOVASTATIN	20 MG
00093057610	LOVASTATIN	20 MG
00093057619	LOVASTATIN	20 MG
00093057693	LOVASTATIN	20 MG
00185007201	LOVASTATIN	20 MG
00185007210	LOVASTATIN	20 MG
00185007260	LOVASTATIN	20 MG
00228263406	LOVASTATIN	20 MG
00228263450	LOVASTATIN	20 MG
00378652005	LOVASTATIN	20 MG
00378652091	LOVASTATIN	20 MG
00781121010	LOVASTATIN	20 MG
00781121060	LOVASTATIN	20 MG
00904558252	LOVASTATIN	20 MG
10544024130	LOVASTATIN	20 MG
10544024630	LOVASTATIN	20 MG
12280010860	LOVASTATIN	20 MG

16590054730	LOVASTATIN	20 MG
16590054760	LOVASTATIN	20 MG
16590054772	LOVASTATIN	20 MG
16590054790	LOVASTATIN	20 MG
21695053530	LOVASTATIN	20 MG
21695053590	LOVASTATIN	20 MG
23490583900	LOVASTATIN	20 MG
23490583901	LOVASTATIN	20 MG
33261054802	LOVASTATIN	20 MG
33261054830	LOVASTATIN	20 MG
33261054860	LOVASTATIN	20 MG
33261054890	LOVASTATIN	20 MG
33358022500	LOVASTATIN	20 MG
33358022530	LOVASTATIN	20 MG
33358022560	LOVASTATIN	20 MG
35356088530	LOVASTATIN	20 MG
35356088560	LOVASTATIN	20 MG
35356088590	LOVASTATIN	20 MG
42254002830	LOVASTATIN	20 MG
42254002890	LOVASTATIN	20 MG
42291037690	LOVASTATIN	20 MG
42554002830	LOVASTATIN	20 MG
43063069290	LOVASTATIN	20 MG
43063069293	LOVASTATIN	20 MG
43063098330	LOVASTATIN	20 MG
45963063401	LOVASTATIN	20 MG
45963063404	LOVASTATIN	20 MG
49884075501	LOVASTATIN	20 MG
49884075502	LOVASTATIN	20 MG
49884075510	LOVASTATIN	20 MG
49999047030	LOVASTATIN	20 MG
49999047060	LOVASTATIN	20 MG
49999047090	LOVASTATIN	20 MG
50090075900	LOVASTATIN	20 MG
50090075902	LOVASTATIN	20 MG
50268051111	LOVASTATIN AVPAK	20 MG
50268051115	LOVASTATIN AVPAK	20 MG
51079097501	LOVASTATIN	20 MG
51079097520	LOVASTATIN	20 MG
51079097530	LOVASTATIN	20 MG
51079097556	LOVASTATIN	20 MG
52959072030	LOVASTATIN	20 MG

52959072060	LOVASTATIN	20 MG
52959072090	LOVASTATIN	20 MG
53489060801	LOVASTATIN	20 MG
53489060806	LOVASTATIN	20 MG
53489060810	LOVASTATIN	20 MG
54458084516	LOVASTATIN	20 MG
54458087110	LOVASTATIN	20 MG
54458091510	LOVASTATIN	20 MG
54458093710	LOVASTATIN	20 MG
54458093716	LOVASTATIN	20 MG
54458098310	LOVASTATIN	20 MG
54569061300	MEVACOR	20 MG
54569061301	MEVACOR	20 MG
54569061302	MEVACOR	20 MG
54569061303	MEVACOR	20 MG
54569061304	MEVACOR	20 MG
54569534600	LOVASTATIN	20 MG
54569534602	LOVASTATIN	20 MG
54569801100	MEVACOR	20 MG
54569886600	LOVASTATIN	20 MG
54868068601	MEVACOR	20 MG
54868068602	MEVACOR	20 MG
54868068603	MEVACOR	20 MG
54868068604	MEVACOR	20 MG
54868458500	LOVASTATIN	20 MG
54868458501	LOVASTATIN	20 MG
54868458502	LOVASTATIN	20 MG
54868458503	LOVASTATIN	20 MG
55045301401	LOVASTATIN	20 MG
55045301402	LOVASTATIN	20 MG
55045301406	LOVASTATIN	20 MG
55045301408	LOVASTATIN	20 MG
55045301409	LOVASTATIN	20 MG
55048039530	LOVASTATIN	20 MG
55175504606	MEVACOR	20 MG
55289040030	MEVACOR	20 MG
55289088130	LOVASTATIN	20 MG
55289088190	LOVASTATIN	20 MG
55700024430	LOVASTATIN	20 MG
55700024460	LOVASTATIN	20 MG
55700024490	LOVASTATIN	20 MG
55887097430	LOVASTATIN	20 MG

57866660101	LOVASTATIN	20 MG
58016090000	LOVASTATIN	20 MG
58016090002	LOVASTATIN	20 MG
58016090030	LOVASTATIN	20 MG
58016090060	LOVASTATIN	20 MG
58016090090	LOVASTATIN	20 MG
58864078030	LOVASTATIN	20 MG
58864078060	LOVASTATIN	20 MG
59630062830	ALTOPREV	20 MG
60429024910	LOVASTATIN	20 MG
60429024960	LOVASTATIN	20 MG
60429040110	LOVASTATIN	20 MG
60429040160	LOVASTATIN	20 MG
60429040190	LOVASTATIN	20 MG
60505017800	LOVASTATIN	20 MG
60760037030	LOVASTATIN	20 MG
61442014201	LOVASTATIN	20 MG
61442014205	LOVASTATIN	20 MG
61442014210	LOVASTATIN	20 MG
61442014260	LOVASTATIN	20 MG
61919054730	LOVASTATIN	20 MG
61919054790	LOVASTATIN	20 MG
61919067671	LOVASTATIN	20 MG
62022062830	ALTOPREV	20 MG
62022077030	ALTOCOR	20 MG
62037079201	LOVASTATIN	20 MG
62037079260	LOVASTATIN	20 MG
63629146401	LOVASTATIN	20 MG
63629146402	LOVASTATIN	20 MG
63629146403	LOVASTATIN	20 MG
63739028103	LOVASTATIN	20 MG
63739028110	LOVASTATIN	20 MG
63739028115	LOVASTATIN	20 MG
63874036301	LOVASTATIN	20 MG
63874036310	LOVASTATIN	20 MG
63874036320	LOVASTATIN	20 MG
63874036330	LOVASTATIN	20 MG
63874036360	LOVASTATIN	20 MG
63874036390	LOVASTATIN	20 MG
66116027730	LOVASTATIN	20 MG
66336031005	LOVASTATIN	20 MG
66336031030	LOVASTATIN	20 MG

66336031060	LOVASTATIN	20 MG
66336031090	LOVASTATIN	20 MG
67046045030	LOVASTATIN	20 MG
68001022400	LOVASTATIN	20 MG
68001022406	LOVASTATIN	20 MG
68001022408	LOVASTATIN	20 MG
68001031500	LOVASTATIN	20 MG
68001031508	LOVASTATIN	20 MG
68084013201	LOVASTATIN	20 MG
68084055901	LOVASTATIN	20 MG
68084055911	LOVASTATIN	20 MG
68115021930	LOVASTATIN	20 MG
68115021960	LOVASTATIN	20 MG
68180046801	LOVASTATIN	20 MG
68180046803	LOVASTATIN	20 MG
68180046805	LOVASTATIN	20 MG
68180046807	LOVASTATIN	20 MG
68645056690	LOVASTATIN	20 MG
70515062830	ALTOPREV	20 MG
00003017850	PRAVACHOL	20 MG
00003017851	PRAVACHOL	20 MG
00003517805	PRAVACHOL	20 MG
00003517806	PRAVACHOL	20 MG
00003517875	PRAVACHOL	20 MG
00093720110	PRAVASTATIN SODIUM	20 MG
00093720198	PRAVASTATIN SODIUM	20 MG
00378055477	PRAVASTATIN SODIUM	20 MG
00378822010	PRAVASTATIN SODIUM	20 MG
00378822077	PRAVASTATIN SODIUM	20 MG
00591001410	PRAVASTATIN SODIUM	20 MG
00591001419	PRAVASTATIN SODIUM	20 MG
00781523210	PRAVASTATIN SODIUM	20 MG
00781523292	PRAVASTATIN SODIUM	20 MG
00904589261	PRAVASTATIN SODIUM	20 MG
00904611461	PRAVASTATIN SODIUM	20 MG
10544050530	PRAVASTATIN SODIUM	20 MG
13411011801	PRAVACHOL	20 MG
13411011802	PRAVACHOL	20 MG
13411011803	PRAVACHOL	20 MG
13411011806	PRAVACHOL	20 MG
13411011809	PRAVACHOL	20 MG
16252052750	PRAVASTATIN SODIUM	20 MG

16252052790	PRAVASTATIN SODIUM	20 MG
16729000915	PRAVASTATIN SODIUM	20 MG
16729000916	PRAVASTATIN SODIUM	20 MG
16729000917	PRAVASTATIN SODIUM	20 MG
21695017930	PRAVASTATIN SODIUM	20 MG
21695017990	PRAVASTATIN SODIUM	20 MG
23490935103	PRAVASTATIN SODIUM	20 MG
23490935106	PRAVASTATIN SODIUM	20 MG
23490935109	PRAVASTATIN SODIUM	20 MG
33261086700	PRAVASTATIN SODIUM	20 MG
33261086730	PRAVASTATIN SODIUM	20 MG
33261086760	PRAVASTATIN SODIUM	20 MG
33261086790	PRAVASTATIN SODIUM	20 MG
35356091930	PRAVASTATIN SODIUM	20 MG
35356091990	PRAVASTATIN SODIUM	20 MG
42254020230	PRAVASTATIN SODIUM	20 MG
42254020290	PRAVASTATIN SODIUM	20 MG
42254042530	PRAVASTATIN SODIUM	20 MG
42254042590	PRAVASTATIN SODIUM	20 MG
42291066710	PRAVASTATIN SODIUM	20 MG
42291066790	PRAVASTATIN SODIUM	20 MG
43063014330	PRAVASTATIN SODIUM	20 MG
43063044330	PRAVASTATIN SODIUM	20 MG
43063080730	PRAVASTATIN SODIUM	20 MG
49884017909	PRAVASTATIN SODIUM	20 MG
49884017910	PRAVASTATIN SODIUM	20 MG
50090202500	PRAVASTATIN SODIUM	20 MG
50090202501	PRAVASTATIN SODIUM	20 MG
50090254500	PRAVASTATIN SODIUM	20 MG
50090254501	PRAVASTATIN SODIUM	20 MG
50111076203	PRAVASTATIN SODIUM	20 MG
50111076217	PRAVASTATIN SODIUM	20 MG
50268067311	PRAVASTATIN SODIUM AVPAK	20 MG
50268067315	PRAVASTATIN SODIUM AVPAK	20 MG
51079045801	PRAVASTATIN SODIUM	20 MG
51079045820	PRAVASTATIN SODIUM	20 MG
51655007152	PRAVASTATIN SODIUM	20 MG
52959099030	PRAVASTATIN SODIUM	20 MG
52959099090	PRAVASTATIN SODIUM	20 MG
54458086910	PRAVASTATIN SODIUM	20 MG
54458090802	PRAVASTATIN SODIUM	20 MG
54458092610	PRAVASTATIN SODIUM	20 MG

54458092616	PRAVASTATIN SODIUM	20 MG
54458098610	PRAVASTATIN SODIUM	20 MG
54569371500	PRAVACHOL	20 MG
54569371501	PRAVACHOL	20 MG
54569371502	PRAVACHOL	20 MG
54569371503	PRAVACHOL	20 MG
54569407100	PRAVACHOL	20 MG
54569579300	PRAVASTATIN SODIUM	20 MG
54569579301	PRAVASTATIN SODIUM	20 MG
54569851000	PRAVACHOL	20 MG
54569851001	PRAVACHOL	20 MG
54868228800	PRAVACHOL	20 MG
54868228801	PRAVACHOL	20 MG
54868228802	PRAVACHOL	20 MG
54868557700	PRAVASTATIN SODIUM	20 MG
54868557701	PRAVASTATIN SODIUM	20 MG
55048059730	PRAVASTATIN SODIUM	20 MG
55111023005	PRAVASTATIN SODIUM	20 MG
55111023090	PRAVASTATIN SODIUM	20 MG
55175539003	PRAVACHOL	20 MG
55289087130	PRAVACHOL	20 MG
55887020330	PRAVASTATIN	20 MG
55887020390	PRAVASTATIN	20 MG
57237016505	PRAVASTATIN SODIUM	20 MG
57237016590	PRAVASTATIN SODIUM	20 MG
58016001300	PRAVASTATIN	20 MG
58016001330	PRAVASTATIN	20 MG
58016001360	PRAVASTATIN	20 MG
58016001390	PRAVASTATIN	20 MG
58016042500	PRAVACHOL	20 MG
58016042530	PRAVACHOL	20 MG
58016042560	PRAVACHOL	20 MG
58016042590	PRAVACHOL	20 MG
60429036805	PRAVASTATIN SODIUM	20 MG
60429036845	PRAVASTATIN SODIUM	20 MG
60429036890	PRAVASTATIN SODIUM	20 MG
60505016907	PRAVASTATIN SODIUM	20 MG
60505016909	PRAVASTATIN SODIUM	20 MG
60687017801	PRAVASTATIN SODIUM	20 MG
60687017811	PRAVASTATIN SODIUM	20 MG
60760007730	PRAVASTATIN SODIUM	20 MG
60760007790	PRAVASTATIN SODIUM	20 MG

60760042190	PRAVASTATIN SODIUM	20 MG
61919073190	PRAVASTATIN SODIUM	20 MG
63304059690	PRAVASTATIN SODIUM	20 MG
63629356301	PRAVASTATIN SODIUM	20 MG
63739064910	PRAVASTATIN SODIUM	20 MG
63739064941	PRAVASTATIN SODIUM	20 MG
66105012101	PRAVACHOL	20 MG
66105012103	PRAVACHOL	20 MG
66105012106	PRAVACHOL	20 MG
66105012109	PRAVACHOL	20 MG
66105012115	PRAVACHOL	20 MG
66116023830	PRAVACHOL	20 MG
66336068530	PRAVASTATIN SODIUM	20 MG
66336068590	PRAVASTATIN SODIUM	20 MG
68084018701	PRAVASTATIN SODIUM	20 MG
68084050101	PRAVASTATIN SODIUM	20 MG
68084050111	PRAVASTATIN SODIUM	20 MG
68180048602	PRAVASTATIN SODIUM	20 MG
68180048609	PRAVASTATIN SODIUM	20 MG
68382007105	PRAVASTATIN SODIUM	20 MG
68382007116	PRAVASTATIN SODIUM	20 MG
68462019605	PRAVASTATIN SODIUM	20 MG
68462019690	PRAVASTATIN SODIUM	20 MG
71205014930	PRAVASTATIN SODIUM	20 MG
00093757298	ROSUVASTATIN CALCIUM	20 MG
00310075239	CRESTOR	20 MG
00310075290	CRESTOR	20 MG
00378220477	ROSUVASTATIN CALCIUM	20 MG
00781540292	ROSUVASTATIN CALCIUM	20 MG
00904660461	ROSUVASTATIN CALCIUM	20 MG
00904678061	ROSUVASTATIN CALCIUM	20 MG
12280035130	CRESTOR	20 MG
12280035190	CRESTOR	20 MG
13668018130	ROSUVASTATIN CALCIUM	20 MG
13668018190	ROSUVASTATIN CALCIUM	20 MG
16252061730	ROSUVASTATIN CALCIUM	20 MG
16252061750	ROSUVASTATIN CALCIUM	20 MG
16252061790	ROSUVASTATIN CALCIUM	20 MG
16729028615	ROSUVASTATIN CALCIUM	20 MG
16729028617	ROSUVASTATIN CALCIUM	20 MG
21695028890	CRESTOR	20 MG
27808015701	ROSUVASTATIN CALCIUM	20 MG

31722088490	ROSUVASTATIN CALCIUM	20 MG
42291074490	ROSUVASTATIN CALCIUM	20 MG
42292003101	ROSUVASTATIN CALCIUM	20 MG
42292003120	ROSUVASTATIN CALCIUM	20 MG
47335058481	ROSUVASTATIN CALCIUM	20 MG
47335098683	EZALLOR SPRINKLE	20 MG
49884026209	ROSUVASTATIN CALCIUM	20 MG
49999099230	CRESTOR	20 MG
49999099290	CRESTOR	20 MG
50090272400	ROSUVASTATIN CALCIUM	20 MG
50090272401	ROSUVASTATIN CALCIUM	20 MG
50268071011	ROSUVASTATIN CALCIUM AVPAK	20 MG
50268071015	ROSUVASTATIN CALCIUM AVPAK	20 MG
51407015590	ROSUVASTATIN CALCIUM	20 MG
53217011330	CRESTOR	20 MG
53217011390	CRESTOR	20 MG
53217029630	ROSUVASTATIN CALCIUM	20 MG
53217029690	ROSUVASTATIN CALCIUM	20 MG
54569567200	CRESTOR	20 MG
54569567202	CRESTOR	20 MG
54569667500	ROSUVASTATIN CALCIUM	20 MG
54569667501	ROSUVASTATIN CALCIUM	20 MG
54868508500	CRESTOR	20 MG
54868508501	CRESTOR	20 MG
54868508502	CRESTOR	20 MG
54868508503	CRESTOR	20 MG
54868508504	CRESTOR	20 MG
55048009730	CRESTOR	20 MG
55289093230	CRESTOR	20 MG
55700057530	ROSUVASTATIN CALCIUM	20 MG
57237017090	ROSUVASTATIN CALCIUM	20 MG
57237017099	ROSUVASTATIN CALCIUM	20 MG
58016005200	CRESTOR	20 MG
58016005230	CRESTOR	20 MG
58016005260	CRESTOR	20 MG
58016005290	CRESTOR	20 MG
60429084490	ROSUVASTATIN CALCIUM	20 MG
60505450409	ROSUVASTATIN CALCIUM	20 MG
60687025601	ROSUVASTATIN CALCIUM	20 MG
60687025611	ROSUVASTATIN CALCIUM	20 MG
63187086530	ROSUVASTATIN CALCIUM	20 MG
63187086590	ROSUVASTATIN CALCIUM	20 MG

65862029590	ROSUVASTATIN CALCIUM	20 MG
66336067430	CRESTOR	20 MG
67877044105	ROSUVASTATIN CALCIUM	20 MG
67877044190	ROSUVASTATIN CALCIUM	20 MG
68071026330	CRESTOR	20 MG
68462026390	ROSUVASTATIN CALCIUM	20 MG
70377000812	ROSUVASTATIN CALCIUM	20 MG
70377000813	ROSUVASTATIN CALCIUM	20 MG
71205004490	ROSUVASTATIN CALCIUM	20 MG
71205007730	ROSUVASTATIN CALCIUM	20 MG
71205009990	ROSUVASTATIN CALCIUM	20 MG
71205027930	ROSUVASTATIN CALCIUM	20 MG
71335030201	ROSUVASTATIN CALCIUM	20 MG
71335030202	ROSUVASTATIN CALCIUM	20 MG
71335030203	ROSUVASTATIN CALCIUM	20 MG
72205000490	ROSUVASTATIN CALCIUM	20 MG
72205000499	ROSUVASTATIN CALCIUM	20 MG
76519114903	ROSUVASTATIN CALCIUM	20 MG
00006074028	ZOCOR	20 MG
00006074031	ZOCOR	20 MG
00006074054	ZOCOR	20 MG
00006074061	ZOCOR	20 MG
00006074082	ZOCOR	20 MG
00006074087	ZOCOR	20 MG
00093715410	SIMVASTATIN	20 MG
00093715419	SIMVASTATIN	20 MG
00093715431	SIMVASTATIN	20 MG
00093715456	SIMVASTATIN	20 MG
00093715493	SIMVASTATIN	20 MG
00093715498	SIMVASTATIN	20 MG
00406206703	SIMVASTATIN	20 MG
00406206705	SIMVASTATIN	20 MG
00406206710	SIMVASTATIN	20 MG
00406206760	SIMVASTATIN	20 MG
00406206790	SIMVASTATIN	20 MG
00781507231	SIMVASTATIN	20 MG
00781507292	SIMVASTATIN	20 MG
00904580161	SIMVASTATIN	20 MG
10544048630	SIMVASTATIN	20 MG
13411013201	ZOCOR	20 MG
13411013203	ZOCOR	20 MG
13411013206	ZOCOR	20 MG

13411013209	ZOCOR	20 MG
13411013215	ZOCOR	20 MG
16252050730	SIMVASTATIN	20 MG
16252050750	SIMVASTATIN	20 MG
16252050790	SIMVASTATIN	20 MG
16590044630	SIMVASTATIN	20 MG
16714068301	SIMVASTATIN	20 MG
16714068302	SIMVASTATIN	20 MG
16714068303	SIMVASTATIN	20 MG
16729000510	SIMVASTATIN	20 MG
16729000515	SIMVASTATIN	20 MG
16729000517	SIMVASTATIN	20 MG
21695074030	SIMVASTATIN	20 MG
21695074090	SIMVASTATIN	20 MG
23490935403	SIMVASTATIN	20 MG
23490935406	SIMVASTATIN	20 MG
23490935409	SIMVASTATIN	20 MG
24658021210	SIMVASTATIN	20 MG
24658021230	SIMVASTATIN	20 MG
24658021245	SIMVASTATIN	20 MG
24658021290	SIMVASTATIN	20 MG
24658030210	SIMVASTATIN	20 MG
24658030215	SIMVASTATIN	20 MG
24658030230	SIMVASTATIN	20 MG
24658030245	SIMVASTATIN	20 MG
24658030290	SIMVASTATIN	20 MG
31722051210	SIMVASTATIN	20 MG
31722051290	SIMVASTATIN	20 MG
33261054102	SIMVASTATIN	20 MG
33261054130	SIMVASTATIN	20 MG
33261054160	SIMVASTATIN	20 MG
33261054190	SIMVASTATIN	20 MG
35356066730	SIMVASTATIN	20 MG
35356078118	SIMVASTATIN	20 MG
35356078130	SIMVASTATIN	20 MG
35356078190	SIMVASTATIN	20 MG
42254006030	SIMVASTATIN	20 MG
42254006090	SIMVASTATIN	20 MG
42571002010	SIMVASTATIN	20 MG
42571002090	SIMVASTATIN	20 MG
43063000801	SIMVASTATIN	20 MG
43063000830	SIMVASTATIN	20 MG

43063000890	SIMVASTATIN	20 MG
45802038401	SIMVASTATIN	20 MG
45802038465	SIMVASTATIN	20 MG
45802038475	SIMVASTATIN	20 MG
45802038493	SIMVASTATIN	20 MG
45865042130	SIMVASTATIN	20 MG
45865042151	SIMVASTATIN	20 MG
45865042160	SIMVASTATIN	20 MG
45865042190	SIMVASTATIN	20 MG
49999030630	ZOCOR	20 MG
49999088930	SIMVASTATIN	20 MG
49999088960	SIMVASTATIN	20 MG
49999088990	SIMVASTATIN	20 MG
50090099901	SIMVASTATIN	20 MG
50090099902	SIMVASTATIN	20 MG
50090099903	SIMVASTATIN	20 MG
50268071411	SIMVASTATIN AVPAK	20 MG
50268071415	SIMVASTATIN AVPAK	20 MG
50436012202	SIMVASTATIN	20 MG
50742013810	SIMVASTATIN	20 MG
51079039301	SIMVASTATIN	20 MG
51079039320	SIMVASTATIN	20 MG
51079045501	SIMVASTATIN	20 MG
51079045520	SIMVASTATIN	20 MG
52343002390	SIMVASTATIN	20 MG
52343002399	SIMVASTATIN	20 MG
52959098930	SIMVASTATIN	20 MG
52959098990	SIMVASTATIN	20 MG
54458089910	SIMVASTATIN	20 MG
54458092804	SIMVASTATIN	20 MG
54458093310	SIMVASTATIN	20 MG
54458093316	SIMVASTATIN	20 MG
54569440300	ZOCOR	20 MG
54569583300	SIMVASTATIN	20 MG
54569583301	SIMVASTATIN	20 MG
54569583302	SIMVASTATIN	20 MG
54569583303	SIMVASTATIN	20 MG
54868310400	ZOCOR	20 MG
54868310401	ZOCOR	20 MG
54868562800	SIMVASTATIN	20 MG
54868562801	SIMVASTATIN	20 MG
54868562802	SIMVASTATIN	20 MG

55048077530	SIMVASTATIN	20 MG
55048077590	SIMVASTATIN	20 MG
55111019905	SIMVASTATIN	20 MG
55111019910	SIMVASTATIN	20 MG
55111019930	SIMVASTATIN	20 MG
55111019990	SIMVASTATIN	20 MG
55111074010	SIMVASTATIN	20 MG
55111074030	SIMVASTATIN	20 MG
55111074090	SIMVASTATIN	20 MG
55289029314	SIMVASTATIN	20 MG
55289029330	SIMVASTATIN	20 MG
55289029390	SIMVASTATIN	20 MG
55700002130	SIMVASTATIN	20 MG
55700002190	SIMVASTATIN	20 MG
55700017830	SIMVASTATIN	20 MG
55700054990	SIMVASTATIN	20 MG
55887032730	SIMVASTATIN	20 MG
55887032760	SIMVASTATIN	20 MG
55887032790	SIMVASTATIN	20 MG
57866393601	SIMVASTATIN	20 MG
57866798201	ZOCOR	20 MG
58016000700	SIMVASTATIN	20 MG
58016000730	SIMVASTATIN	20 MG
58016000760	SIMVASTATIN	20 MG
58016000790	SIMVASTATIN	20 MG
58016038500	ZOCOR	20 MG
58016038530	ZOCOR	20 MG
58016038560	ZOCOR	20 MG
58016038590	ZOCOR	20 MG
58864076030	ZOCOR	20 MG
60760000530	SIMVASTATIN	20 MG
60760000590	SIMVASTATIN	20 MG
61919044630	SIMVASTATIN	20 MG
61919044660	SIMVASTATIN	20 MG
61919044690	SIMVASTATIN	20 MG
63304079110	SIMVASTATIN	20 MG
63304079130	SIMVASTATIN	20 MG
63304079190	SIMVASTATIN	20 MG
63629339301	SIMVASTATIN	20 MG
63629339302	SIMVASTATIN	20 MG
63629339303	SIMVASTATIN	20 MG
63629339304	SIMVASTATIN	20 MG

63739042110	SIMVASTATIN	20 MG
63739043704	SIMVASTATIN	20 MG
63739043710	SIMVASTATIN	20 MG
63739057210	SIMVASTATIN	20 MG
65862005226	SIMVASTATIN	20 MG
65862005230	SIMVASTATIN	20 MG
65862005290	SIMVASTATIN	20 MG
65862005299	SIMVASTATIN	20 MG
66105050503	ZOCOR	20 MG
66267126101	SIMVASTATIN	20 MG
66336095430	SIMVASTATIN	20 MG
66336095490	SIMVASTATIN	20 MG
68071069930	SIMVASTATIN	20 MG
68084016301	SIMVASTATIN	20 MG
68084051201	SIMVASTATIN	20 MG
68084051211	SIMVASTATIN	20 MG
68115067230	ZOCOR	20 MG
68180047901	SIMVASTATIN	20 MG
68180047902	SIMVASTATIN	20 MG
68180047903	SIMVASTATIN	20 MG
68382006705	SIMVASTATIN	20 MG
68382006706	SIMVASTATIN	20 MG
68382006710	SIMVASTATIN	20 MG
68382006714	SIMVASTATIN	20 MG
68382006716	SIMVASTATIN	20 MG
68382006724	SIMVASTATIN	20 MG
68645026154	SIMVASTATIN	20 MG
68645047054	SIMVASTATIN	20 MG
70377000312	SIMVASTATIN	20 MG
70377000314	SIMVASTATIN	20 MG
70377000315	SIMVASTATIN	20 MG
29273040104	FLOLIPID	20 MG/5 ML
66582032130	LIPTRUZET	20 MG-10 MG
66582032154	LIPTRUZET	20 MG-10 MG
00006075731	JUVISYNC	20 MG-100 MG
00006075754	JUVISYNC	20 MG-100 MG
00006075782	JUVISYNC	20 MG-100 MG
00074300790	ADVICOR	20 MG-1000 MG
54868508700	ADVICOR	20 MG-1000 MG
60598000890	ADVICOR	20 MG-1000 MG
00006053531	JUVISYNC	20 MG-50 MG
00006053554	JUVISYNC	20 MG-50 MG

00074300590	ADVICOR	20 MG-500 MG
54868480700	ADVICOR	20 MG-500 MG
54868480701	ADVICOR	20 MG-500 MG
60598000690	ADVICOR	20 MG-500 MG
00074307290	ADVICOR	20 MG-750 MG
54868480702	ADVICOR	20 MG-750 MG
54868499900	ADVICOR	20 MG-750 MG
54868499901	ADVICOR	20 MG-750 MG
60598000790	ADVICOR	20 MG-750 MG
00003516911	PRAVIGARD PAC	325 MG; 20 MG
00003517411	PRAVIGARD PAC	325 MG; 40 MG
00003518411	PRAVIGARD PAC	325 MG; 80 MG
00002477290	LIVALO	4 MG
25208020209	ZYPITAMAG	4 MG
66869040407	LIVALO	4 MG
66869040490	LIVALO	4 MG
00071015723	LIPITOR	40 MG
00071015740	LIPITOR	40 MG
00071015773	LIPITOR	40 MG
00071015788	LIPITOR	40 MG
00093505898	ATORVASTATIN CALCIUM	40 MG
00378212105	ATORVASTATIN CALCIUM	40 MG
00378212177	ATORVASTATIN CALCIUM	40 MG
00378395205	ATORVASTATIN CALCIUM	40 MG
00378395207	ATORVASTATIN CALCIUM	40 MG
00378395209	ATORVASTATIN CALCIUM	40 MG
00378395277	ATORVASTATIN CALCIUM	40 MG
00591377605	ATORVASTATIN CALCIUM	40 MG
00591377619	ATORVASTATIN CALCIUM	40 MG
00781538492	ATORVASTATIN CALCIUM	40 MG
00904629261	ATORVASTATIN CALCIUM	40 MG
10135065110	ATORVASTATIN CALCIUM	40 MG
13411011501	LIPITOR	40 MG
13411011503	LIPITOR	40 MG
13411011506	LIPITOR	40 MG
13411011509	LIPITOR	40 MG
13411011515	LIPITOR	40 MG
16714087601	ATORVASTATIN CALCIUM	40 MG
16714087602	ATORVASTATIN CALCIUM	40 MG
16714087603	ATORVASTATIN CALCIUM	40 MG
16729004617	ATORVASTATIN CALCIUM	40 MG
21695025590	LIPITOR	40 MG

33261097300	ATORVASTATIN CALCIUM	40 MG
33261097330	ATORVASTATIN CALCIUM	40 MG
33261097360	ATORVASTATIN CALCIUM	40 MG
33261097390	ATORVASTATIN CALCIUM	40 MG
35356092930	ATORVASTATIN CALCIUM	40 MG
42254001930	ATORVASTATIN CALCIUM	40 MG
42254001945	ATORVASTATIN CALCIUM	40 MG
42254001990	ATORVASTATIN CALCIUM	40 MG
42254037930	ATORVASTATIN CALCIUM	40 MG
42254037990	ATORVASTATIN CALCIUM	40 MG
42291014550	ATORVASTATIN CALCIUM	40 MG
42291014590	ATORVASTATIN CALCIUM	40 MG
43063045330	ATORVASTATIN CALCIUM	40 MG
49999046830	LIPITOR	40 MG
49999046890	LIPITOR	40 MG
50090126000	ATORVASTATIN CALCIUM	40 MG
50090126001	ATORVASTATIN CALCIUM	40 MG
50090126100	ATORVASTATIN CALCIUM	40 MG
50090126101	ATORVASTATIN CALCIUM	40 MG
50090343800	ATORVASTATIN CALCIUM	40 MG
50090343801	ATORVASTATIN CALCIUM	40 MG
50268009511	ATORVASTATIN CALCIUM AVPAK	40 MG
50268009515	ATORVASTATIN CALCIUM AVPAK	40 MG
50436998901	ATORVASTATIN CALCIUM	40 MG
51079021001	ATORVASTATIN CALCIUM	40 MG
51079021020	ATORVASTATIN CALCIUM	40 MG
51079041101	ATORVASTATIN CALCIUM	40 MG
51079041120	ATORVASTATIN CALCIUM	40 MG
51407008010	ATORVASTATIN CALCIUM	40 MG
51407008090	ATORVASTATIN CALCIUM	40 MG
51655064030	ATORVASTATIN CALCIUM	40 MG
51655065152	ATORVASTATIN CALCIUM	40 MG
52959004630	LIPITOR	40 MG
54458088110	ATORVASTATIN CALCIUM	40 MG
54458088116	ATORVASTATIN CALCIUM	40 MG
54569458700	LIPITOR	40 MG
54569458701	LIPITOR	40 MG
54569628400	ATORVASTATIN CALCIUM	40 MG
54569628401	ATORVASTATIN CALCIUM	40 MG
54868422900	LIPITOR	40 MG
54868422901	LIPITOR	40 MG
54868422902	LIPITOR	40 MG

54868422903	LIPITOR	40 MG
54868632100	ATORVASTATIN CALCIUM	40 MG
55111012305	ATORVASTATIN CALCIUM	40 MG
55111012390	ATORVASTATIN CALCIUM	40 MG
55289086130	LIPITOR	40 MG
55887092990	LIPITOR	40 MG
58864062315	LIPITOR	40 MG
58864062330	LIPITOR	40 MG
59762015701	ATORVASTATIN CALCIUM	40 MG
59762015702	ATORVASTATIN CALCIUM	40 MG
60429032501	ATORVASTATIN CALCIUM	40 MG
60429032505	ATORVASTATIN CALCIUM	40 MG
60429032577	ATORVASTATIN CALCIUM	40 MG
60429032590	ATORVASTATIN CALCIUM	40 MG
60505258008	ATORVASTATIN CALCIUM	40 MG
60505258009	ATORVASTATIN CALCIUM	40 MG
60760035530	ATORVASTATIN CALCIUM	40 MG
60760035590	ATORVASTATIN CALCIUM	40 MG
60760070930	ATORVASTATIN CALCIUM	40 MG
60760090530	ATORVASTATIN CALCIUM	40 MG
60760090590	ATORVASTATIN CALCIUM	40 MG
61919030330	ATORVASTATIN CALCIUM	40 MG
61919030390	ATORVASTATIN CALCIUM	40 MG
62175089241	ATORVASTATIN CALCIUM	40 MG
62175089246	ATORVASTATIN CALCIUM	40 MG
63304082905	ATORVASTATIN CALCIUM	40 MG
63304082990	ATORVASTATIN CALCIUM	40 MG
63629486501	ATORVASTATIN CALCIUM	40 MG
66105011509	LIPITOR	40 MG
67801031403	LIPITOR	40 MG
67877051310	ATORVASTATIN CALCIUM	40 MG
67877051390	ATORVASTATIN CALCIUM	40 MG
68071031030	LIPITOR	40 MG
68071091630	ATORVASTATIN CALCIUM	40 MG
68084009901	ATORVASTATIN CALCIUM	40 MG
68084009911	ATORVASTATIN CALCIUM	40 MG
68084058901	ATORVASTATIN CALCIUM	40 MG
68115066815	LIPITOR	40 MG
68115066830	LIPITOR	40 MG
68115066890	LIPITOR	40 MG
68258600203	LIPITOR	40 MG
68258600209	LIPITOR	40 MG

68382025110	ATORVASTATIN CALCIUM	40 MG
68382025116	ATORVASTATIN CALCIUM	40 MG
68645041754	ATORVASTATIN CALCIUM	40 MG
68645046054	ATORVASTATIN CALCIUM	40 MG
68645048354	ATORVASTATIN CALCIUM	40 MG
68645056854	ATORVASTATIN CALCIUM	40 MG
69097089905	ATORVASTATIN CALCIUM	40 MG
69097089915	ATORVASTATIN CALCIUM	40 MG
69097094605	ATORVASTATIN CALCIUM	40 MG
69097094615	ATORVASTATIN CALCIUM	40 MG
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70377002913	ATORVASTATIN CALCIUM	40 MG
70882010930	ATORVASTATIN CALCIUM	40 MG
70934009130	ATORVASTATIN CALCIUM	40 MG
71205026490	ATORVASTATIN CALCIUM	40 MG
71335010201	ATORVASTATIN CALCIUM	40 MG
71335010202	ATORVASTATIN CALCIUM	40 MG
71335010203	ATORVASTATIN CALCIUM	40 MG
71335010204	ATORVASTATIN CALCIUM	40 MG
71399054001	ATORVASTATIN CALCIUM	40 MG
72205002405	ATORVASTATIN CALCIUM	40 MG
72205002490	ATORVASTATIN CALCIUM	40 MG
76519106303	ATORVASTATIN CALCIUM	40 MG
00078023405	LESCOL	40 MG
00078023415	LESCOL	40 MG
00093744301	FLUVASTATIN	40 MG
00093744356	FLUVASTATIN	40 MG
00378802177	FLUVASTATIN	40 MG
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54569476100	LESCOL	40 MG
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54868422400	LESCOL	40 MG
54868422401	LESCOL	40 MG
55289047630	LESCOL	40 MG
00006073261	MEVACOR	40 MG
00006073282	MEVACOR	40 MG
00006073287	MEVACOR	40 MG
00006073294	MEVACOR	40 MG
00093092806	LOVASTATIN	40 MG
00093092810	LOVASTATIN	40 MG
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00185007401	LOVASTATIN	40 MG
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00185007460	LOVASTATIN	40 MG
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00228263550	LOVASTATIN	40 MG
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00378654091	LOVASTATIN	40 MG
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21695053690	LOVASTATIN	40 MG
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23490584002	LOVASTATIN	40 MG
33261054900	LOVASTATIN	40 MG
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42254002590	LOVASTATIN	40 MG
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45963063504	LOVASTATIN	40 MG
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49884075602	LOVASTATIN	40 MG
49884075610	LOVASTATIN	40 MG
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50090321602	LOVASTATIN	40 MG
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54458087010	LOVASTATIN	40 MG
54458091410	LOVASTATIN	40 MG
54458093610	LOVASTATIN	40 MG
54458093616	LOVASTATIN	40 MG
54458098210	LOVASTATIN	40 MG
54569325600	MEVACOR	40 MG
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54569534702	LOVASTATIN	40 MG
54868108700	MEVACOR	40 MG
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54868477400	LOVASTATIN	40 MG
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54868477403	LOVASTATIN	40 MG
54868551300	ALTOPREV	40 MG
55045301501	LOVASTATIN	40 MG
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55289069290	LOVASTATIN	40 MG
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55887036960	LOVASTATIN	40 MG
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58016092290	LOVASTATIN	40 MG
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61919094190	LOVASTATIN	40 MG
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63739028210	LOVASTATIN	40 MG
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66267056190	LOVASTATIN	40 MG
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66336041290	LOVASTATIN	40 MG
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68001031600	LOVASTATIN	40 MG
68001031608	LOVASTATIN	40 MG
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68180046905	LOVASTATIN	40 MG
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68645056790	LOVASTATIN	40 MG
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71205019990	LOVASTATIN	40 MG
71335004501	LOVASTATIN	40 MG
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00003519433	PRAVACHOL	40 MG
00093720210	PRAVASTATIN SODIUM	40 MG
00093720298	PRAVASTATIN SODIUM	40 MG
00378055777	PRAVASTATIN SODIUM	40 MG
00378824010	PRAVASTATIN SODIUM	40 MG
00378824077	PRAVASTATIN SODIUM	40 MG
00591001610	PRAVASTATIN SODIUM	40 MG
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00781523410	PRAVASTATIN SODIUM	40 MG
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00904589361	PRAVASTATIN SODIUM	40 MG
00904611561	PRAVASTATIN SODIUM	40 MG
10544050730	PRAVASTATIN SODIUM	40 MG
12280033515	PRAVASTATIN	40 MG
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12280033590	PRAVASTATIN	40 MG
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16252052890	PRAVASTATIN SODIUM	40 MG
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16590054690	PRAVASTATIN SODIUM	40 MG
16729001015	PRAVASTATIN SODIUM	40 MG
16729001016	PRAVASTATIN SODIUM	40 MG
16729001017	PRAVASTATIN SODIUM	40 MG
21695018030	PRAVASTATIN SODIUM	40 MG
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23490935209	PRAVASTATIN SODIUM	40 MG
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33261086890	PRAVASTATIN SODIUM	40 MG
35356012530	PRAVASTATIN SODIUM	40 MG
42254013130	PRAVASTATIN SODIUM	40 MG
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42254043430	PRAVASTATIN SODIUM	40 MG
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49884018009	PRAVASTATIN SODIUM	40 MG
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50090202400	PRAVASTATIN SODIUM	40 MG
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50111076417	PRAVASTATIN SODIUM	40 MG
51079078201	PRAVASTATIN SODIUM	40 MG
51079078220	PRAVASTATIN SODIUM	40 MG
51655007252	PRAVASTATIN SODIUM	40 MG
51655007352	PRAVASTATIN SODIUM	40 MG
54458086710	PRAVASTATIN SODIUM	40 MG
54458092510	PRAVASTATIN SODIUM	40 MG
54458092516	PRAVASTATIN SODIUM	40 MG
54458098510	PRAVASTATIN SODIUM	40 MG
54569461000	PRAVACHOL	40 MG
54569579400	PRAVASTATIN SODIUM	40 MG
54569579401	PRAVASTATIN SODIUM	40 MG
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54868327001	PRAVACHOL	40 MG
54868327002	PRAVACHOL	40 MG
54868557800	PRAVASTATIN SODIUM	40 MG
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58016001290	PRAVASTATIN	40 MG
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58864074330	PRAVACHOL	40 MG
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60429036990	PRAVASTATIN SODIUM	40 MG
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60760007830	PRAVASTATIN SODIUM	40 MG
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63629160601	PRAVASTATIN SODIUM	40 MG
63629160602	PRAVASTATIN SODIUM	40 MG
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68180048702	PRAVASTATIN SODIUM	40 MG
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68462019790	PRAVASTATIN SODIUM	40 MG
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68788725306	PRAVASTATIN SODIUM	40 MG
68788725308	PRAVASTATIN SODIUM	40 MG
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76519120009	PRAVASTATIN SODIUM	40 MG
00093757356	ROSUVASTATIN CALCIUM	40 MG
00310075430	CRESTOR	40 MG
00378223293	ROSUVASTATIN CALCIUM	40 MG
00781540331	ROSUVASTATIN CALCIUM	40 MG
00904660561	ROSUVASTATIN CALCIUM	40 MG
00904678161	ROSUVASTATIN CALCIUM	40 MG
13668018230	ROSUVASTATIN CALCIUM	40 MG
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16252061890	ROSUVASTATIN CALCIUM	40 MG
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27808015801	ROSUVASTATIN CALCIUM	40 MG
31722088530	ROSUVASTATIN CALCIUM	40 MG
35356041330	CRESTOR	40 MG
42291074590	ROSUVASTATIN CALCIUM	40 MG
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42292003220	ROSUVASTATIN CALCIUM	40 MG
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47335098783	EZALLOR SPRINKLE	40 MG
49884026311	ROSUVASTATIN CALCIUM	40 MG
50090272500	ROSUVASTATIN CALCIUM	40 MG
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50090343700	ROSUVASTATIN CALCIUM	40 MG
50090343701	ROSUVASTATIN CALCIUM	40 MG
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50268071115	ROSUVASTATIN CALCIUM AVPAK	40 MG
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54569667601	ROSUVASTATIN CALCIUM	40 MG
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54868189001	CRESTOR	40 MG
55700053490	ROSUVASTATIN CALCIUM	40 MG
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57237017130	ROSUVASTATIN CALCIUM	40 MG
57237017190	ROSUVASTATIN CALCIUM	40 MG
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58016007130	CRESTOR	40 MG
58016007160	CRESTOR	40 MG
58016007190	CRESTOR	40 MG
60429084530	ROSUVASTATIN CALCIUM	40 MG
60505450503	ROSUVASTATIN CALCIUM	40 MG
63187086930	ROSUVASTATIN CALCIUM	40 MG
63187087230	ROSUVASTATIN CALCIUM	40 MG
65862029630	ROSUVASTATIN CALCIUM	40 MG
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68462026430	ROSUVASTATIN CALCIUM	40 MG
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76519115303	ROSUVASTATIN CALCIUM	40 MG
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00006074954	ZOCOR	40 MG
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00006074982	ZOCOR	40 MG
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00406206890	SIMVASTATIN	40 MG
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13411013309	ZOCOR	40 MG
13411013315	ZOCOR	40 MG
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16252050890	SIMVASTATIN	40 MG
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16714068402	SIMVASTATIN	40 MG
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24658030390	SIMVASTATIN	40 MG
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31722051390	SIMVASTATIN	40 MG
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33261054290	SIMVASTATIN	40 MG
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42254003245	SIMVASTATIN	40 MG
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51079039801	SIMVASTATIN	40 MG
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52959011230	ZOCOR	40 MG
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54458093216	SIMVASTATIN	40 MG
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54569583401	SIMVASTATIN	40 MG
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54569583403	SIMVASTATIN	40 MG
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54868415701	ZOCOR	40 MG
54868415702	ZOCOR	40 MG
54868562900	SIMVASTATIN	40 MG
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54868562903	SIMVASTATIN	40 MG
54868562904	SIMVASTATIN	40 MG
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55048077490	SIMVASTATIN	40 MG
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55887085890	SIMVASTATIN	40 MG
57866394901	SIMVASTATIN	40 MG
57866798301	ZOCOR	40 MG
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58016000660	SIMVASTATIN	40 MG
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58016036530	ZOCOR	40 MG
58016036560	ZOCOR	40 MG
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58864068230	ZOCOR	40 MG
60687021001	SIMVASTATIN	40 MG
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60760000630	SIMVASTATIN	40 MG
60760000690	SIMVASTATIN	40 MG
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63739042210	SIMVASTATIN	40 MG
63739043810	SIMVASTATIN	40 MG
63739057310	SIMVASTATIN	40 MG
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65862005399	SIMVASTATIN	40 MG
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66336095330	SIMVASTATIN	40 MG
66336095390	SIMVASTATIN	40 MG
68084016401	SIMVASTATIN	40 MG
68084051301	SIMVASTATIN	40 MG
68115077730	ZOCOR	40 MG
68115077790	ZOCOR	40 MG
68180046403	SIMVASTATIN	40 MG
68180046406	SIMVASTATIN	40 MG
68180046409	SIMVASTATIN	40 MG
68180048001	SIMVASTATIN	40 MG
68180048002	SIMVASTATIN	40 MG
68180048003	SIMVASTATIN	40 MG
68382006805	SIMVASTATIN	40 MG

68382006806	SIMVASTATIN	40 MG
68382006810	SIMVASTATIN	40 MG
68382006814	SIMVASTATIN	40 MG
68382006816	SIMVASTATIN	40 MG
68382006840	SIMVASTATIN	40 MG
68645026254	SIMVASTATIN	40 MG
68645047154	SIMVASTATIN	40 MG
68645052754	SIMVASTATIN	40 MG
70377000412	SIMVASTATIN	40 MG
70377000414	SIMVASTATIN	40 MG
70377000415	SIMVASTATIN	40 MG
71205019230	SIMVASTATIN	40 MG
29273040204	FLOLIPID	40 MG/5 ML
66582032230	LIPTRUZET	40 MG-10 MG
66582032254	LIPTRUZET	40 MG-10 MG
00006077331	JUVISYNC	40 MG-100 MG
00006077354	JUVISYNC	40 MG-100 MG
00006077382	JUVISYNC	40 MG-100 MG
00074301090	ADVICOR	40 MG-1000 MG
54868565300	ADVICOR	40 MG-1000 MG
54868565301	ADVICOR	40 MG-1000 MG
60598000990	ADVICOR	40 MG-1000 MG
00006053731	JUVISYNC	40 MG-50 MG
00006053754	JUVISYNC	40 MG-50 MG
00093757098	ROSUVASTATIN CALCIUM	5 MG
00310075590	CRESTOR	5 MG
00378220177	ROSUVASTATIN CALCIUM	5 MG
00781540092	ROSUVASTATIN CALCIUM	5 MG
00904660261	ROSUVASTATIN CALCIUM	5 MG
00904677861	ROSUVASTATIN CALCIUM	5 MG
13668017930	ROSUVASTATIN CALCIUM	5 MG
13668017990	ROSUVASTATIN CALCIUM	5 MG
16252061530	ROSUVASTATIN CALCIUM	5 MG
16252061550	ROSUVASTATIN CALCIUM	5 MG
16252061590	ROSUVASTATIN CALCIUM	5 MG
16729028415	ROSUVASTATIN CALCIUM	5 MG
16729028417	ROSUVASTATIN CALCIUM	5 MG
21695075990	CRESTOR	5 MG
27808015501	ROSUVASTATIN CALCIUM	5 MG
31722088290	ROSUVASTATIN CALCIUM	5 MG
35356051930	CRESTOR	5 MG
42291074290	ROSUVASTATIN CALCIUM	5 MG

42292002901	ROSUVASTATIN CALCIUM	5 MG
42292002920	ROSUVASTATIN CALCIUM	5 MG
47335058281	ROSUVASTATIN CALCIUM	5 MG
47335098483	EZALLOR SPRINKLE	5 MG
47463009530	CRESTOR	5 MG
49884026009	ROSUVASTATIN CALCIUM	5 MG
50090272200	ROSUVASTATIN CALCIUM	5 MG
50090272201	ROSUVASTATIN CALCIUM	5 MG
50090317600	ROSUVASTATIN CALCIUM	5 MG
50090317601	ROSUVASTATIN CALCIUM	5 MG
51407015390	ROSUVASTATIN CALCIUM	5 MG
53217029730	ROSUVASTATIN CALCIUM	5 MG
53217029790	ROSUVASTATIN CALCIUM	5 MG
54569574600	CRESTOR	5 MG
54569667300	ROSUVASTATIN CALCIUM	5 MG
54569667301	ROSUVASTATIN CALCIUM	5 MG
54868534100	CRESTOR	5 MG
54868534101	CRESTOR	5 MG
55048009530	CRESTOR	5 MG
57237016805	ROSUVASTATIN CALCIUM	5 MG
57237016890	ROSUVASTATIN CALCIUM	5 MG
60429084290	ROSUVASTATIN CALCIUM	5 MG
60505450209	ROSUVASTATIN CALCIUM	5 MG
60687023401	ROSUVASTATIN CALCIUM	5 MG
60687023411	ROSUVASTATIN CALCIUM	5 MG
63187086090	ROSUVASTATIN CALCIUM	5 MG
63629715801	ROSUVASTATIN CALCIUM	5 MG
63629715802	ROSUVASTATIN CALCIUM	5 MG
65862029390	ROSUVASTATIN CALCIUM	5 MG
67877043990	ROSUVASTATIN CALCIUM	5 MG
68071078430	CRESTOR	5 MG
68258601703	CRESTOR	5 MG
68462026190	ROSUVASTATIN CALCIUM	5 MG
68788731002	ROSUVASTATIN CALCIUM	5 MG
68788731003	ROSUVASTATIN CALCIUM	5 MG
68788731006	ROSUVASTATIN CALCIUM	5 MG
68788731009	ROSUVASTATIN CALCIUM	5 MG
70377000612	ROSUVASTATIN CALCIUM	5 MG
70377000613	ROSUVASTATIN CALCIUM	5 MG
71335074901	ROSUVASTATIN CALCIUM	5 MG
72205000290	ROSUVASTATIN CALCIUM	5 MG
72205000299	ROSUVASTATIN CALCIUM	5 MG

00006072628	ZOCOR	5 MG
00006072631	ZOCOR	5 MG
00006072654	ZOCOR	5 MG
00006072661	ZOCOR	5 MG
00006072682	ZOCOR	5 MG
00093715219	SIMVASTATIN	5 MG
00093715256	SIMVASTATIN	5 MG
00093715293	SIMVASTATIN	5 MG
00093715298	SIMVASTATIN	5 MG
00406206503	SIMVASTATIN	5 MG
00406206505	SIMVASTATIN	5 MG
00406206510	SIMVASTATIN	5 MG
00406206560	SIMVASTATIN	5 MG
00406206590	SIMVASTATIN	5 MG
00781507031	SIMVASTATIN	5 MG
00781507092	SIMVASTATIN	5 MG
13411016101	ZOCOR	5 MG
13411016103	ZOCOR	5 MG
13411016106	ZOCOR	5 MG
13411016109	ZOCOR	5 MG
13411016115	ZOCOR	5 MG
16252050530	SIMVASTATIN	5 MG
16252050550	SIMVASTATIN	5 MG
16252050590	SIMVASTATIN	5 MG
16714068101	SIMVASTATIN	5 MG
16714068102	SIMVASTATIN	5 MG
16729015610	SIMVASTATIN	5 MG
16729015615	SIMVASTATIN	5 MG
16729015617	SIMVASTATIN	5 MG
21695073890	SIMVASTATIN	5 MG
23490935603	SIMVASTATIN	5 MG
23490935606	SIMVASTATIN	5 MG
23490935609	SIMVASTATIN	5 MG
24658021010	SIMVASTATIN	5 MG
24658021030	SIMVASTATIN	5 MG
24658021045	SIMVASTATIN	5 MG
24658021090	SIMVASTATIN	5 MG
24658030010	SIMVASTATIN	5 MG
24658030030	SIMVASTATIN	5 MG
24658030045	SIMVASTATIN	5 MG
24658030090	SIMVASTATIN	5 MG
31722051010	SIMVASTATIN	5 MG

31722051090	SIMVASTATIN	5 MG
42571000590	SIMVASTATIN	5 MG
45802092465	SIMVASTATIN	5 MG
49999090090	SIMVASTATIN	5 MG
50090138700	SIMVASTATIN	5 MG
50090254300	SIMVASTATIN	5 MG
50268071211	SIMVASTATIN AVPAK	5 MG
50268071215	SIMVASTATIN AVPAK	5 MG
54569645000	SIMVASTATIN	5 MG
54868606600	SIMVASTATIN	5 MG
55111019705	SIMVASTATIN	5 MG
55111019730	SIMVASTATIN	5 MG
55111019790	SIMVASTATIN	5 MG
55111072610	SIMVASTATIN	5 MG
55111072630	SIMVASTATIN	5 MG
55111072690	SIMVASTATIN	5 MG
58864073930	ZOCOR	5 MG
63304078910	SIMVASTATIN	5 MG
63304078930	SIMVASTATIN	5 MG
63304078990	SIMVASTATIN	5 MG
63739041910	SIMVASTATIN	5 MG
63739043510	SIMVASTATIN	5 MG
63739057010	SIMVASTATIN	5 MG
65862005030	SIMVASTATIN	5 MG
65862005090	SIMVASTATIN	5 MG
65862005099	SIMVASTATIN	5 MG
68084016101	SIMVASTATIN	5 MG
68084051001	SIMVASTATIN	5 MG
68180048206	SIMVASTATIN	5 MG
68180048209	SIMVASTATIN	5 MG
68258605003	SIMVASTATIN	5 MG
68258698509	SIMVASTATIN	5 MG
68382006505	SIMVASTATIN	5 MG
68382006506	SIMVASTATIN	5 MG
68382006510	SIMVASTATIN	5 MG
68382006514	SIMVASTATIN	5 MG
68382006516	SIMVASTATIN	5 MG
70377000112	SIMVASTATIN	5 MG
70377000114	SIMVASTATIN	5 MG
70377000115	SIMVASTATIN	5 MG
71205007090	SIMVASTATIN	5 MG
00069215030	CADUET	5 MG-10 MG

00378451305	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
00378451393	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
00378616405	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
00378616477	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
00378616493	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
12280039930	CADUET	5 MG-10 MG
43598032230	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
43598032290	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
49999098930	CADUET	5 MG-10 MG
54569570400	CADUET	5 MG-10 MG
54868328700	CADUET	5 MG-10 MG
54868328701	CADUET	5 MG-10 MG
59762672001	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
59762672005	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
59762672007	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
63304058730	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-10 MG
00069217030	CADUET	5 MG-20 MG
00378451405	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
00378451493	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
00378616505	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
00378616577	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
00378616593	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
43598031930	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
43598031990	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
54868120700	CADUET	5 MG-20 MG
54868120701	CADUET	5 MG-20 MG
59762672101	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
59762672105	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
59762672107	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG

63304058830	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-20 MG
00069219030	CADUET	5 MG-40 MG
00378451505	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
00378451593	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
00378616605	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
00378616677	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
00378616693	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
43598031630	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
43598031690	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
54868517900	CADUET	5 MG-40 MG
59762672201	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
59762672205	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
59762672207	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
63304058930	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-40 MG
00069226030	CADUET	5 MG-80 MG
00378451693	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-80 MG
00378616777	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-80 MG
00378616793	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-80 MG
43598031430	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-80 MG
54868542000	CADUET	5 MG-80 MG
59762672301	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-80 MG
63304049930	AMLODIPINE BESYLATE-ATORVASTATIN CA	5 MG-80 MG
00074331290	SIMCOR	500 MG-20 MG
54868588600	SIMCOR	500 MG-20 MG
54868588601	SIMCOR	500 MG-20 MG
00074345903	SIMCOR	500 MG-40 MG
00074345990	SIMCOR	500 MG-40 MG
54868535800	ALTOPREV	60 MG
59630063030	ALTOPREV	60 MG
62022063030	ALTOPREV	60 MG
62022078130	ALTOCOR	60 MG
70515063030	ALTOPREV	60 MG

00074331590	SIMCOR	750 MG-20 MG
54868590700	SIMCOR	750 MG-20 MG
54868590701	SIMCOR	750 MG-20 MG
00071015823	LIPITOR	80 MG
00071015873	LIPITOR	80 MG
00071015888	LIPITOR	80 MG
00071015892	LIPITOR	80 MG
00093505798	ATORVASTATIN CALCIUM	80 MG
00378212205	ATORVASTATIN CALCIUM	80 MG
00378212277	ATORVASTATIN CALCIUM	80 MG
00378395305	ATORVASTATIN CALCIUM	80 MG
00378395307	ATORVASTATIN CALCIUM	80 MG
00378395309	ATORVASTATIN CALCIUM	80 MG
00378395377	ATORVASTATIN CALCIUM	80 MG
00591377705	ATORVASTATIN CALCIUM	80 MG
00591377719	ATORVASTATIN CALCIUM	80 MG
00781538892	ATORVASTATIN CALCIUM	80 MG
00904629304	ATORVASTATIN CALCIUM	80 MG
10135065305	ATORVASTATIN CALCIUM	80 MG
12280015030	LIPITOR	80 MG
16714087701	ATORVASTATIN CALCIUM	80 MG
16714087702	ATORVASTATIN CALCIUM	80 MG
16714087703	ATORVASTATIN CALCIUM	80 MG
16729004716	ATORVASTATIN CALCIUM	80 MG
33261099530	ATORVASTATIN CALCIUM	80 MG
33261099560	ATORVASTATIN CALCIUM	80 MG
33261099590	ATORVASTATIN CALCIUM	80 MG
42254026730	ATORVASTATIN CALCIUM	80 MG
42254026745	ATORVASTATIN CALCIUM	80 MG
42254026790	ATORVASTATIN CALCIUM	80 MG
42254039290	ATORVASTATIN CALCIUM	80 MG
42291014650	ATORVASTATIN CALCIUM	80 MG
42291014690	ATORVASTATIN CALCIUM	80 MG
49999088230	LIPITOR	80 MG
49999088290	LIPITOR	80 MG
50090126400	ATORVASTATIN CALCIUM	80 MG
50090126401	ATORVASTATIN CALCIUM	80 MG
50090126500	ATORVASTATIN CALCIUM	80 MG
50090126501	ATORVASTATIN CALCIUM	80 MG
50268009611	ATORVASTATIN CALCIUM AVPAK	80 MG
50268009612	ATORVASTATIN CALCIUM AVPAK	80 MG
51079021101	ATORVASTATIN CALCIUM	80 MG

51079021103	ATORVASTATIN CALCIUM	80 MG
51079041201	ATORVASTATIN CALCIUM	80 MG
51079041203	ATORVASTATIN CALCIUM	80 MG
51407008105	ATORVASTATIN CALCIUM	80 MG
51407008190	ATORVASTATIN CALCIUM	80 MG
51655088030	ATORVASTATIN CALCIUM	80 MG
53217031930	ATORVASTATIN CALCIUM	80 MG
53217031990	ATORVASTATIN CALCIUM	80 MG
54569538200	LIPITOR	80 MG
54569628500	ATORVASTATIN CALCIUM	80 MG
54569628501	ATORVASTATIN CALCIUM	80 MG
54868493400	LIPITOR	80 MG
54868493401	LIPITOR	80 MG
54868493402	LIPITOR	80 MG
54868493403	LIPITOR	80 MG
54868632200	ATORVASTATIN CALCIUM	80 MG
55111012405	ATORVASTATIN CALCIUM	80 MG
55111012490	ATORVASTATIN CALCIUM	80 MG
55700003430	ATORVASTATIN CALCIUM	80 MG
58016005100	LIPITOR	80 MG
58016005130	LIPITOR	80 MG
58016005160	LIPITOR	80 MG
58016005190	LIPITOR	80 MG
58864083430	LIPITOR	80 MG
59762015801	ATORVASTATIN CALCIUM	80 MG
59762015802	ATORVASTATIN CALCIUM	80 MG
60429032601	ATORVASTATIN CALCIUM	80 MG
60429032605	ATORVASTATIN CALCIUM	80 MG
60429032633	ATORVASTATIN CALCIUM	80 MG
60429032690	ATORVASTATIN CALCIUM	80 MG
60505267108	ATORVASTATIN CALCIUM	80 MG
60505267109	ATORVASTATIN CALCIUM	80 MG
60760035630	ATORVASTATIN CALCIUM	80 MG
62175089741	ATORVASTATIN CALCIUM	80 MG
62175089746	ATORVASTATIN CALCIUM	80 MG
63187065690	ATORVASTATIN CALCIUM	80 MG
63187090790	ATORVASTATIN CALCIUM	80 MG
63304083005	ATORVASTATIN CALCIUM	80 MG
63304083090	ATORVASTATIN CALCIUM	80 MG
63629336601	LIPITOR	80 MG
63629336602	LIPITOR	80 MG
63629336603	LIPITOR	80 MG

63629336604	LIPITOR	80 MG
67877051405	ATORVASTATIN CALCIUM	80 MG
67877051490	ATORVASTATIN CALCIUM	80 MG
68084059025	ATORVASTATIN CALCIUM	80 MG
68084059095	ATORVASTATIN CALCIUM	80 MG
68382025210	ATORVASTATIN CALCIUM	80 MG
68382025216	ATORVASTATIN CALCIUM	80 MG
68645041854	ATORVASTATIN CALCIUM	80 MG
68645046154	ATORVASTATIN CALCIUM	80 MG
68645049554	ATORVASTATIN CALCIUM	80 MG
69097091105	ATORVASTATIN CALCIUM	80 MG
69097091112	ATORVASTATIN CALCIUM	80 MG
69097094705	ATORVASTATIN CALCIUM	80 MG
69097094712	ATORVASTATIN CALCIUM	80 MG
70377003012	ATORVASTATIN CALCIUM	80 MG
70377003014	ATORVASTATIN CALCIUM	80 MG
71205009890	ATORVASTATIN CALCIUM	80 MG
71335029501	ATORVASTATIN CALCIUM	80 MG
71335029502	ATORVASTATIN CALCIUM	80 MG
71335029503	ATORVASTATIN CALCIUM	80 MG
71335058301	ATORVASTATIN CALCIUM	80 MG
71335058302	ATORVASTATIN CALCIUM	80 MG
71335058303	ATORVASTATIN CALCIUM	80 MG
72205002505	ATORVASTATIN CALCIUM	80 MG
72205002590	ATORVASTATIN CALCIUM	80 MG
76519108403	ATORVASTATIN CALCIUM	80 MG
00078035405	LESCOL XL	80 MG
00078035415	LESCOL XL	80 MG
00093744601	FLUVASTATIN SODIUM	80 MG
00093744656	FLUVASTATIN SODIUM	80 MG
00378512101	FLUVASTATIN SODIUM	80 MG
00378512193	FLUVASTATIN SODIUM	80 MG
00781537001	FLUVASTATIN SODIUM	80 MG
00781537031	FLUVASTATIN SODIUM	80 MG
00781801701	FLUVASTATIN SODIUM	80 MG
00781801731	FLUVASTATIN SODIUM	80 MG
54569549800	LESCOL XL	80 MG
54868460100	LESCOL XL	80 MG
00003519510	PRAVACHOL	80 MG
00003519533	PRAVACHOL	80 MG
00093727010	PRAVASTATIN SODIUM	80 MG
00093727098	PRAVASTATIN SODIUM	80 MG

00378055377	PRAVASTATIN SODIUM	80 MG
00378828005	PRAVASTATIN SODIUM	80 MG
00378828077	PRAVASTATIN SODIUM	80 MG
00591001905	PRAVASTATIN SODIUM	80 MG
00591001919	PRAVASTATIN SODIUM	80 MG
00781523592	PRAVASTATIN SODIUM	80 MG
16252052950	PRAVASTATIN SODIUM	80 MG
16252052990	PRAVASTATIN SODIUM	80 MG
16729001115	PRAVASTATIN SODIUM	80 MG
16729001116	PRAVASTATIN SODIUM	80 MG
33261095300	PRAVASTATIN SODIUM	80 MG
33261095330	PRAVASTATIN SODIUM	80 MG
33261095360	PRAVASTATIN SODIUM	80 MG
33261095390	PRAVASTATIN SODIUM	80 MG
42291066910	PRAVASTATIN SODIUM	80 MG
42291066945	PRAVASTATIN SODIUM	80 MG
42291066990	PRAVASTATIN SODIUM	80 MG
42549049090	PRAVASTATIN SODIUM	80 MG
50090278500	PRAVASTATIN SODIUM	80 MG
50090278501	PRAVASTATIN SODIUM	80 MG
50090320400	PRAVASTATIN SODIUM	80 MG
50090320401	PRAVASTATIN SODIUM	80 MG
54569651000	PRAVASTATIN SODIUM	80 MG
54569651001	PRAVASTATIN SODIUM	80 MG
54868463400	PRAVACHOL	80 MG
54868557900	PRAVASTATIN SODIUM	80 MG
54868557901	PRAVASTATIN SODIUM	80 MG
55048059830	PRAVASTATIN SODIUM	80 MG
55111027405	PRAVASTATIN SODIUM	80 MG
55111027490	PRAVASTATIN SODIUM	80 MG
57237016705	PRAVASTATIN SODIUM	80 MG
57237016790	PRAVASTATIN SODIUM	80 MG
60429037005	PRAVASTATIN SODIUM	80 MG
60429037045	PRAVASTATIN SODIUM	80 MG
60429037090	PRAVASTATIN SODIUM	80 MG
60505132305	PRAVASTATIN SODIUM	80 MG
60505132309	PRAVASTATIN SODIUM	80 MG
61919073490	PRAVASTATIN SODIUM	80 MG
63304059805	PRAVASTATIN SODIUM	80 MG
63304059890	PRAVASTATIN SODIUM	80 MG
68084074625	PRAVASTATIN SODIUM	80 MG
68084074695	PRAVASTATIN SODIUM	80 MG

68180048802	PRAVASTATIN SODIUM	80 MG
68180048809	PRAVASTATIN SODIUM	80 MG
68258601303	PRAVASTATIN SODIUM	80 MG
68258601309	PRAVASTATIN SODIUM	80 MG
68382007305	PRAVASTATIN SODIUM	80 MG
68382007316	PRAVASTATIN SODIUM	80 MG
68462019805	PRAVASTATIN SODIUM	80 MG
68462019890	PRAVASTATIN SODIUM	80 MG
68788719301	PRAVASTATIN SODIUM	80 MG
68788719302	PRAVASTATIN SODIUM	80 MG
68788719303	PRAVASTATIN SODIUM	80 MG
68788719306	PRAVASTATIN SODIUM	80 MG
68788719308	PRAVASTATIN SODIUM	80 MG
68788719309	PRAVASTATIN SODIUM	80 MG
68788731601	PRAVASTATIN SODIUM	80 MG
68788731602	PRAVASTATIN SODIUM	80 MG
68788731603	PRAVASTATIN SODIUM	80 MG
68788731606	PRAVASTATIN SODIUM	80 MG
68788731608	PRAVASTATIN SODIUM	80 MG
68788731609	PRAVASTATIN SODIUM	80 MG
00006054328	ZOCOR	80 MG
00006054331	ZOCOR	80 MG
00006054354	ZOCOR	80 MG
00006054361	ZOCOR	80 MG
00006054382	ZOCOR	80 MG
00093715610	SIMVASTATIN	80 MG
00093715619	SIMVASTATIN	80 MG
00093715656	SIMVASTATIN	80 MG
00093715693	SIMVASTATIN	80 MG
00093715698	SIMVASTATIN	80 MG
00406206903	SIMVASTATIN	80 MG
00406206905	SIMVASTATIN	80 MG
00406206910	SIMVASTATIN	80 MG
00406206960	SIMVASTATIN	80 MG
00406206990	SIMVASTATIN	80 MG
00781507431	SIMVASTATIN	80 MG
00781507492	SIMVASTATIN	80 MG
16252050930	SIMVASTATIN	80 MG
16252050950	SIMVASTATIN	80 MG
16252050990	SIMVASTATIN	80 MG
16590072690	SIMVASTATIN	80 MG
16714068501	SIMVASTATIN	80 MG

16714068502	SIMVASTATIN	80 MG
16714068503	SIMVASTATIN	80 MG
16729000710	SIMVASTATIN	80 MG
16729000715	SIMVASTATIN	80 MG
16729000717	SIMVASTATIN	80 MG
21695074230	SIMVASTATIN	80 MG
21695074290	SIMVASTATIN	80 MG
23490935703	SIMVASTATIN	80 MG
23490935706	SIMVASTATIN	80 MG
23490935709	SIMVASTATIN	80 MG
24658021410	SIMVASTATIN	80 MG
24658021430	SIMVASTATIN	80 MG
24658021445	SIMVASTATIN	80 MG
24658021490	SIMVASTATIN	80 MG
24658030410	SIMVASTATIN	80 MG
24658030415	SIMVASTATIN	80 MG
24658030430	SIMVASTATIN	80 MG
24658030445	SIMVASTATIN	80 MG
24658030490	SIMVASTATIN	80 MG
31722051490	SIMVASTATIN	80 MG
35356060030	SIMVASTATIN	80 MG
42254016890	SIMVASTATIN	80 MG
42571008005	SIMVASTATIN	80 MG
42571008090	SIMVASTATIN	80 MG
43063008030	SIMVASTATIN	80 MG
43063008090	SIMVASTATIN	80 MG
43063073330	SIMVASTATIN	80 MG
45802029265	SIMVASTATIN	80 MG
45802029275	SIMVASTATIN	80 MG
50090112100	SIMVASTATIN	80 MG
50090112101	SIMVASTATIN	80 MG
50268071611	SIMVASTATIN AVPAK	80 MG
50268071615	SIMVASTATIN AVPAK	80 MG
50742014010	SIMVASTATIN	80 MG
52343002545	SIMVASTATIN	80 MG
52343002590	SIMVASTATIN	80 MG
54569564000	ZOCOR	80 MG
54569611300	SIMVASTATIN	80 MG
54569611301	SIMVASTATIN	80 MG
54868418100	ZOCOR	80 MG
54868418101	ZOCOR	80 MG
54868563000	SIMVASTATIN	80 MG

54868563001	SIMVASTATIN	80 MG
55048077630	SIMVASTATIN	80 MG
55048077690	SIMVASTATIN	80 MG
55111026805	SIMVASTATIN	80 MG
55111026830	SIMVASTATIN	80 MG
55111026890	SIMVASTATIN	80 MG
55111075010	SIMVASTATIN	80 MG
55111075030	SIMVASTATIN	80 MG
55111075090	SIMVASTATIN	80 MG
55887031830	SIMVASTATIN	80 MG
55887031860	SIMVASTATIN	80 MG
55887031890	SIMVASTATIN	80 MG
60760001930	SIMVASTATIN	80 MG
63304079310	SIMVASTATIN	80 MG
63304079330	SIMVASTATIN	80 MG
63304079350	SIMVASTATIN	80 MG
63304079390	SIMVASTATIN	80 MG
65862005430	SIMVASTATIN	80 MG
65862005439	SIMVASTATIN	80 MG
65862005490	SIMVASTATIN	80 MG
65862005499	SIMVASTATIN	80 MG
66336098630	SIMVASTATIN	80 MG
66336098690	SIMVASTATIN	80 MG
68084016501	SIMVASTATIN	80 MG
68084051401	SIMVASTATIN	80 MG
68084051411	SIMVASTATIN	80 MG
68115075930	ZOCOR	80 MG
68180046503	SIMVASTATIN	80 MG
68180046506	SIMVASTATIN	80 MG
68180046509	SIMVASTATIN	80 MG
68180048101	SIMVASTATIN	80 MG
68180048102	SIMVASTATIN	80 MG
68180048103	SIMVASTATIN	80 MG
68382006905	SIMVASTATIN	80 MG
68382006906	SIMVASTATIN	80 MG
68382006910	SIMVASTATIN	80 MG
68382006914	SIMVASTATIN	80 MG
68382006916	SIMVASTATIN	80 MG
68645026354	SIMVASTATIN	80 MG
68645047254	SIMVASTATIN	80 MG
70377000512	SIMVASTATIN	80 MG
70377000514	SIMVASTATIN	80 MG

70377000515	SIMVASTATIN	80 MG
66582032330	LIPTRUZET	80 MG-10 MG
66582032354	LIPTRUZET	80 MG-10 MG
00003516811	PRAVIGARD PAC	81 MG; 20 MG
00003517311	PRAVIGARD PAC	81 MG; 40 MG
00003518311	PRAVIGARD PAC	81 MG; 80 MG

APPENDIX TABLE B: ELIXHAUSER COMORBIDITY LIST

Elixhauser Comorbidity List
Congestive heart failure
Cardiac arrhythmias
Valvular disease
Pulmonary Circulation Disorders
Peripheral vascular disorders
Hypertension, uncomplicated
Hypertension, complicated
Paralysis
Other neurological disorders
Chronic pulmonary disease
Diabetes, uncomplicated
Diabetes, complicated
Hypothyroidism
Renal failure
Liver disease
Peptic ulcer disease excluding bleeding
AIDS/HIV
Rheumatoid arthritis/ collagen vascular diseases
Obesity
Weight loss
Fluid and electrolyte
Blood loss anemia
Deficiency anemia
Alcohol abuse
Drug abuse
Psychoses
Depression
Psychoses

APPENDIX TABLE C: EFFECT OF HT ON VTE (AGE AS CONTINUOUS VARIABLE)

Variable	Model 1: Categorical Age*	Model 2: Continuous Age*
Elixhauser Score: 0 (ref)	1	1
Elixhauser Score: 1-2	1.70 (1.62, 1.79)	1.70 (1.62, 1.79)
Elixhauser Score: 3+	3.81 (3.61, 4.02)	3.80 (3.60, 4.00)
Cancer: None (ref)	1	1
Cancer: Solid Tumor	2.01 (1.90, 2.14)	2.01 (1.90, 2.13)
Cancer: Metastatic Cancer	12.99 (12.03, 14.03)	12.99 (12.03, 14.03)
Hosp/Surgery	8.53 (8.10, 8.97)	8.54 (8.12, 8.99)
Trauma	3.52 (3.32, 3.73)	3.52 (3.32, 3.73)
Varicose Veins	2.88 (2.57, 3.23)	2.87 (2.56, 3.22)
Any Hypercoag	3.07 (2.83, 3.32)	3.07 (2.83, 3.32)
CAD	1.26 (1.19, 1.34)	1.26 (1.18, 1.34)
Stroke	1.18 (1.09, 1.28)	1.18 (1.09, 1.28)
Smoking	1.28 (1.22, 1.34)	1.28 (1.22, 1.34)
Lipid Disorder	0.84 (0.81, 0.87)	0.83 (0.80, 0.87)

*Odds Ratios have been adjusted for age, comorbidity score, region, cancer, hospitalization/surgery, trauma, hypercoagulability, varicose veins, coronary artery disease, stroke, lipid disorders, and smoking history (except where noted as excluded).

APPENDIX TABLE D: ASSESSING TYPE OF HT BY ELIXHAUSER SCORE

HT Prescriptions by Elixhauser Score (Within-row percentages)			
HT	**EH Score**		
	<2	**≥2**	**Total**
None	115419 58.03%	83478 41.97%	198897 88.81%
Estrogen Only	5109 53.04%	4523 46.96%	9632 4.3%
Estrogen + Progestogen	3402 65.7%	1776 34.3%	5178 2.31%
Testosterone	444 56.49%	342 43.51%	786 0.35%
Progestogen Only	822 55.32%	664 44.68%	1486 0.66%
Contraceptive	1849 74.68%	627 25.32%	2476 1.11%
Other	3022 55.01%	2472 44.99%	5494 2.45%
Total	130067 58.08%	93882 41.92%	223949 100%

Chapter 4 The St. Vincent's Congestive Heart Failure Comprehensive Care Clinic Pilot Study

INTRODUCTION

Heart Failure (HF) hospitalization and readmissions remain a leading cause of morbidity, mortality, and cost-burden for the US healthcare system. It is estimated 35% of all 30-day readmissions reported to CMS are HF patients.[63] HF readmissions are particularly concerning for patients with no insurance due to the significant cost. Figures generated from the local health system (University of Texas Medical Branch at Galveston, UTMB) suggest that each readmission of an uninsured person results in approximately $12,500 in losses.

National estimates for 30-day readmission rates for HF range from 18-23%, on average.[65] Fingar et al.[65] estimated that 23% of all HF admissions were readmitted within 30 days, making HF the most common cause for 30-day readmissions of all diagnoses. They reported that the uninsured were readmitted at similar rates (17%). Interventions such as disease management clinics, nurse home visits, and nurse-care clinics decrease HF readmissions,[68] but these programs can be costly to implement and maintain. The purpose of this study was to design a self-sustaining program to reduce readmissions in an uninsured patient population. We designed an interprofessional clinic, interspersed with vitals surveillance visits, aimed at reducing preventable causes of HF readmission. Because this program's sustainability is contingent on its cost-savings to the health system, the goal was that financial losses prevented should be at least equivalent

to the expense of program operations to maintain viability. Here, we report pilot results of that program.

METHODS

Setting. St. Vincent's Free Clinic (STVC) in Galveston Texas is sponsored by UTMB and provides free care to over 3,500 patients annually.[47] It is staffed entirely by volunteers, in addition to one paid nurse and medical provider. Services include, but are not limited to, primary care, case management (food/housing services), counseling, nutrition, pharmacist consultation, respiratory care, occupational/physical therapy, and social work services.

Subjects. Patients were identified by UTMB staff from UTMB prior to discharge as: 1) uninsured and 2) admitted for a HF diagnosis-related group (either reduced or preserved ejection fraction). The implementation study was determined to be IRB-exempt. Because all patients enrolled were uninsured, it ethically precluded randomization without alternative treatment options.

Patients were discharged from January 4-December 23, 2021, and subsequently offered enrollment in this program. All patients who attended at least the enrollment visit and a subsequent visit (at least two visits) within 30 days post-discharge were considered enrolled.

Procedure

The primary intervention was twice-weekly surveillance at the St. Vincent's Clinic for vitals and medication adherence. Within 3 days of hospital discharge, patients were scheduled to receive interprofessional care every Wednesday at STVC over a period of 60 days. Patients deemed “low risk” by their provider were eligible to decrease their visit frequency to weekly after 30 days. Risk was determined according to each patients’ primary care provider’s judgment. Patients were provided free medications, food, and transportation as needed.

At Visit 1, patients were queried on their interest in participation in CHFC3. The program provided free medications to all patients, consistent with the services provided to all other patients at St. Vincent’s. Patients’ vitals were measured at each visit and labs were collected weekly. The recommended schedule for interprofessional activities appears in **Table 1.**

MEASURES

Demographic and baseline medical characteristics were collected **(see Table 2).** Patients also were queried about transportation and food insecurity, specifically as to whether transportation unavailability had precluded them from attending medical visits and whether they had ever had to go without food because of financial reasons.

Outcomes

The primary outcomes were participation (measured by number of visits) and readmission at 30 days. Enrollment was defined as at least two visits in the

program within two weeks of discharge. Patient history at 30 days after discharge were coded as readmitted for any reason (or died, with or without hospitalization) or not readmitted. Patients' medical records were queried for any hospitalization or use of the emergency department, and findings were verbally confirmed with the patient at each visit. If patients missed their appointment, they were contacted by phone, text, email, or through the medical record (i.e., MyChart) to ascertain their admission status.

STATISTICAL ANALYSIS. In order to assess program feasibility, enrollment and participation (count of visits) were obtained. Possible selection bias was estimated by assessing differences in baseline characteristics (i.e., age, sex, severity of disease) by enrollment using measures of association (phi and eta). We also compared patients' baseline characteristics by readmission status using bivariate and multivariable regression.

To evaluate program 30-day readmission rates, first, the proportion of patients readmitted was compared to local (UTMB) rates. UTMB data indicate overall readmission rates in HF remained consistent with national rates throughout the pandemic (19.8%, 262/1326 during the 2020-21 pandemic era and 19.9% IN 2017-2019), suggesting it was reasonable to assess our program against previous years' estimates. Second, the crude proportion of patients readmitted within 30 days who did not enroll (0 or 1 visit) versus those who enrolled (2+ visits) was compared using Fisher exact test. Third, the association between enrollment and readmission was examined when controlling for disease severity with logistic regression. All analysis was performed in SAS (Version 9.4, Cary NC).[145]

RESULTS

From January-December 2021, there were 88 uninsured patients admitted to UTMB facilities (n=29 League City, n=59 Galveston) for a primary diagnosis of HF. Patients admitted to League City were not initially eligible for referral at program initiation; thus, just 2 of 29 (7%) League City patients were referred to the program. Ultimately 61 (69%) total patients were referred to STVC for care, of whom 59 (97%) received at least one documented contact from the program. There are no data or information available for the 2 (3%) patients who were referred but not contacted.

Of those 59 patients referred and contacted, 47 (79.7%) completed at least two visits in the program, 3 (5.1%) attended just one visit, and 9 (15.3%) never attended any appointment (n=47 enrolled, n=12 not enrolled). The mean number of visits attended by patients who enrolled was 8.3 (95% CI: 7.2, 9.4), and ranged from 2 to 16 visits. **Table 3** shows baseline sample characteristics by patients' enrollment status. There were no suspected confounders that were meaningfully associated with enrollment (phi$\geq$0.20) or readmission (see **Table 4**), with the possible exception of disease severity.

Readmissions. Readmissions within 30 days of discharge were 8.5% (4/47,95%CI:2.5%,20.5%) among enrolled and 33.3% (4/12,95%CI:13.6%,61.2%) among the unenrolled. The readmission rate of participants was significantly less than the national estimate (8.5% with CHFC3 vs. 23% national[65], p=0.02).

Readmission also were significantly greater in unenrolled patients. Unadjusted odds of readmission were reduced by 81% (OR=0.19, 95% CI: 0.04, 0.90) in the enrolled versus unenrolled group.

Because program effectiveness might reflect severity of disease, if patients who did not enroll had more severe disease or complications and those patients were more likely to be readmitted, the third analysis compared enrollment with readmission while controlling for disease severity. A simple severity index was created (NYHA Class IV or EF $\leq$15%). In the adjusted analysis, enrollment had a 79% reduction in odds of readmission at 30 days (OR=0.21, 95% CI: 0.04, 1.06). Although the effect was non-significant and the severity index had a large effect (OR=3.01, 95% CI: 0.33, 27.86). There was little change in the association between enrollment and readmission with (OR=0.21) and without (OR=0.19) adjustment for severity, suggesting that effect estimates were not due to disease severity differences.

DISCUSSION

This program was designed to create a new, cost-effective disease management clinic in an uninsured population. Patients who enrolled were significantly less likely to readmit at 30 days than national averages, despite higher social determinants of health burden and significant disease burden. Generalizations from this pilot are limited by selection bias and cohort characteristics when compared to the national population, but it provides support for more robustly evaluating this model. A comparable reduction in readmissions

at our institution (from 262 to 92) would ***save approximately 2.12M dollars annually.*** Thus, it would be a self-sustaining program, funded from the cost savings to the health system. The effect of enrollment appeared to be stable when controlling for disease severity, suggesting that the program may significantly reduce hospitalizations at 30 days post-discharge.

Thus, the program appears potentially effective and possibly self-sustaining. While scalability of the program with twice-weekly visits may be of concern for most major health systems, half of these visits were purely surveillance of vital signs. These will be shifted to nurse and telephone visits in future studies, and a randomized-controlled trial pilot evaluating the program is planned.

Limitations

Because this study did not have a control group, effectiveness could not cannot be estimated. However, observed rates of enrollment and 30-day readmissions inform feasibility for future studies. There also may have been selection bias in who chooses to attend CHFC3 versus those who do not enroll. While results did not seem to be the result of disease severity differences in enrollment, a usual care group might have offered better comparison.

CONCLUSION

The CHFC3 program appears feasible and possibly effective in reducing HF readmissions at 30 days. More investigation is needed to assess whether the

program is scalable and effective in both the insured and uninsured. A randomized controlled trial pilot analyzing this program seems warranted.

Table 1: Weekly Activity Cadence

WEEK/VISIT	ACTIVITY
1-1	Medical evaluation with care provider, Vitals/Labs
1-2	Vitals review, medication adherence review
2-1	Occupational Therapy Initial Evaluation, Case Management (Social Work), Counseling (Psychologist), Vitals/Labs
2-2	Vitals review, medication adherence review
3-1	Pharmacist Consultation, Nutrition Consultation, Vitals/Labs
3-2	Vitals review, medication adherence review
4-1	Nurse visit, Vitals/Labs, Ad-Hoc Visits with other disciplines
4-2	Vitals review, medication adherence review
5-1	Medical evaluation (option for ‘graduation if deemed medically appropriate’), Vitals/Labs
5-2	Vitals review, medication adherence review
6-1 – 8-2	Repeat from 2-1 to 4-2

Table 2: Key Measures

Measure	***Description***	***Visit 1-1***	***Visit 5-1***	***Visit 8-1***	***Weekly***	***Every Visit***
Basic Metabolic Panel	Kidney function, sodium of key interest	X	X	X	X	
Brain Natriuretic Peptide (BNP)	Measure of atrial stretch, correlates with increased volume	X	X	X		
Weight	Weight, in pounds	X	X	X	X	X
Blood pressure	Systolic and Diastolic, mmHg	X	X	X	X	X
Heart Rate	Beats per minute	X	X	X	X	X
O2 Saturation	% Saturation	X	X	X	X	X
Respiration Rate	Breaths per minute	X	X	X	X	X
Age	Age in years	X	X	X		
Sex	Male, Female, Other	X	X	X		
NYHA Functional Class	I (no limitations), II (mild), III (moderate), IV (severe)	X	X	X		
History of Diabetes Mellitus	Yes/No (A1C >6.5%)	X		X		
History of Food Insecurity	Any versus none	X				
History of Transportation Insecurity	Any versus none	X				

Table 3: Patient Characteristics by Enrollment Status

	Not Enrolled (N=12)	Enrolled (N=47)	Overall (N=59)	Phi/Eta Coefficient (N=59)
Age				
Median [Min, Max]	54.5 [36.0, 65.0]	52.0 [23.0, 78.0]	53.0 [23.0, 78.0]	0.03
Race/Ethnicity				
Non-Hispanic Black	1 (8.3%)	14 (29.8%)	15 (25.4%)	
Non-Hispanic White	7 (58.3%)	18 (38.3%)	25 (42.4%)	
White Hispanic	3 (25.0%)	15 (31.9%)	18 (30.5%)	
Unknown	1 (8.3%)	0 (0%)	1 (1.7%)	0.16
Sex				
Female	6 (50.0%)	14 (29.8%)	20 (33.9%)	0.17
BMI (kg)				
Median [Min, Max]	31.0 [20.0, 67.8]	29.9 [21.6, 66.7]	29.9 [20.0, 67.8]	-0.09
NYHA Class				
Class I	1 (8.3%)	4 (8.5%)	5 (8.5%)	
Class II	0 (0%)	8 (17.0%)	8 (13.6%)	
Class III – IV	9 (90.0%)	35 (74.5%)	44 (77.2%)	
Unknown	2 (16.7%)	0 (0%)	2 (3.4%)	0.19
History of Diabetes Mellitus (A1C >= 6.5%)				
Yes	6 (50.0%)	24 (51.1%)	30 (50.8%)	
Not screened	2 (16.7%)	0 (0%)	2 (3.4%)	-0.07

Discharge Ejection Fraction				
Median [Min, Max]	30.0 [15.0, 65.0]	25.0 [10.0, 65.0]	25.0 [10.0, 65.0]	
Not acquired	3 (25.0%)	0 (0%)	3 (5.1%)	0.11
HFpEF				
Preserved EF	3 (25.0%)	7 (14.9%)	10 (16.9%)	-0.11
Serum NT pro-BNP (mg/dL)				
Median [Min, Max]	1440 [294, 6050]	2410 [70.0, 18600]	2220 [70.0, 18600]	
Not acquired	4 (33.3%)	2 (4.3%)	6 (10.2%)	0.13
Creatinine (mg/dL)				
Median [Min, Max]	1.08 [0.700, 1.98]	1.18 [0.420, 3.86]	1.17 [0.420, 3.86]	
Not acquired	3 (25.0%)	1 (2.1%)	4 (6.8%)	0.09
History of Food Insecurity				
Yes	4 (33.3%)	21 (44.7%)	25 (42.4%)	0.09
History of Transportation Insecurity				
Yes	4 (33.3%)	15 (31.9%)	19 (32.2%)	-0.01
Current Smoking				
Smoker	7 (58.3%)	23 (48.9%)	30 (50.8%)	-0.08
Alcohol Consumption Frequency				
Multiple times per week or daily	3 (25.0%)	16 (34.0%)	19 (32.2%)	0.08

Table 4: Patient Characteristics by Readmission Status

	Readmitted (N=4)	Not Readmitted (N=43)	Overall (N=47)	Phi or Eta
HFpEF				
HFpEF	2 (50.0%)	5 (11.6%)	7 (14.9%)	-0.30
BMI (kg)				
Median [Min, Max]	42.6 [22.0, 51.7]	29.6 [21.6, 66.7]	29.9 [21.6, 66.7]	-0.24
NYHA Class				
Class I	0 (0%)	4 (9.3%)	4 (8.5%)	
Class II	1 (25.0%)	7 (16.3%)	8 (17.0%)	
Class III-IV	3 (75.0%)	32 (74.4%)	35 (74.4%)	0.05
History of Diabetes Mellitus (A1C >= 6.5%)				
Yes	2 (50.0%)	22 (51.2%)	24 (51.1%)	0.01
Discharge Ejection Fraction				
Median [Min, Max]	47.5 [15.0, 60.0]	25.0 [10.0, 65.0]	25.0 [10.0, 65.0]	-0.22
Baseline sodium				
Median [Min, Max]	138 [133, 140]	137 [130, 142]	137 [130, 142]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	-0.05
Baseline Heart Rate				
Median [Min, Max]	82.5 [67.0, 98.0]	85.0 [59.0, 137]	85.0 [59.0, 137]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	0.06
Baseline SpO2				
Median [Min, Max]	96.5 [95.0, 100]	98.0 [88.0, 100]	97.5 [88.0, 100]	

Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	-0.02
Baseline Systolic BP				
Median [Min, Max]	115 [95.0, 118]	117 [90.0, 174]	117 [90.0, 174]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	0.16
Baseline Diastolic BP				
Median [Min, Max]	79.5 [70.0, 88.0]	77.0 [51.0, 113]	77.0 [51.0, 113]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	0.02
SGLT2 Prescription*				
Taking	1 (50.0%)	24 (63.2%)	25 (62.5%)	0.03
ARNI Prescription*				
Taking	0 (0%)	3 (7.9%)	3 (7.5%)	0.08
ACE/ARB Prescription*				
Taking	2 (100%)	26 (68.4%)	28 (70.0%)	0.12
MRA Prescription*				
Checked	1 (50.0%)	26 (68.4%)	27 (67.5%)	0.09
Beta Blocker Prescription*				
Taking	2 (100%)	35 (92.1%)	37 (92.5%)	0.09
Statin Prescription*				
Taking	2 (100%)	26 (68.4%)	28 (70.0%)	0.08
Creatinine (mg/dL)				
Median [Min, Max]	1.94 [1.06, 3.18]	1.16 [0.420, 3.86]	1.18 [0.420, 3.86]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	-0.30
Serum NT pro-BNP (mg/dL)				
Median [Min, Max]	1900 [175, 3500]	2790 [70.0, 18600]	2410 [70.0, 18600]	
Not acquired	0 (0%)	2 (4.7%)	2 (4.3%)	0.15
History of Food Insecurity				

Yes	2 (50.0%)	19 (44.2%)	21 (44.7%)	-0.03
History of Transportation Insecurity				
Yes	2 (50.0%)	13 (30.2%)	15 (31.9%)	-0.12
Current Smoking				
Smoker	2 (50.0%)	21 (48.8%)	23 (48.9%)	-0.01
Current Alcohol Consumption Frequency				
Multiple times per week or daily	2 (50.0%)	14 (32.6%)	16 (34.0%)	-0.10
Number Visits Completed				
Median [Min, Max]	11.0 [4.00, 16.0]	8.00 [2.00, 16.0]	8.00 [2.00, 16.0]	-0.18
30-Day Emergency Department Admission				
Yes	4 (100%)	4 (9.3%)	8 (17.0%)	-0.67

**Indicates statistics taken from HFrEF sub-cohort (no HFpEF patients)*

Chapter 5 Concluding Remarks

This concludes the dissertation, a compilation of three distinct aims that are self-contained projects. The first aim estimated relative and absolute risk of adverse musculoskeletal symptoms/events in statin therapy, both crudely and by intensity of therapy. We demonstrated significant increases in risk of these events, but risk was substantially less than what had been previously reported in observational studies. The study has now been cited in guidelines on the step-by-step management of self-reported myalgias in statin therapy by the International Lipid Expert Panel,[146] among other high-impact publications.

Aim 2 assessed the odds of venous thromboembolism given statin and HT exposure in an administrative claims database. This represents a distinctly different area from Aim 1, but contributes to the evidence on prevention and management of vascular disease with statin therapy. Consistent with other studies, we found significantly increased odds of embolism in women who were taking HT, but have identified even stronger associations in women taking contraceptive HT. Notably, statin therapy mitigated approximately 150% of the odds increase in women taking contraceptive HT. While much more work is needed to fully elucidate what role statin therapy might play in embolism prevention, our work is suggestive that women taking contraceptive HT might benefit from high-intensity statin therapy. Even more, it suggests that women 50 or older may be at least relatively contraindicated for contraceptive HT in the first place, pending confirmation in more robust study designs (i.e., prospective cohort).

Aim 3, which details the design and implementation of the Congestive Heart Failure Comprehensive Care clinic, has been submitted for publication and has received funding for further study by the UTMB President's Cabinet, the Sealy and Smith Foundation, and GE Healthcare. We demonstrated a remarkable 65% reduction in 30-day readmission rates when compared to national estimates and to local UTMB estimates. While the pilot study is only suggestive, it is sufficient rationale for further estimating the intervention's possible effectiveness in a randomized controlled trial. An R34 application for a clinical trial pilot study will be submitted to further expand on this work.

Thus, this work serves as foundation for my future career as a physician-scientist, but also has contributed to the evidence base for cardiovascular disease prevention and management. I look forward to what is to come.

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