Supplementary Table 1: Details of the included studies

| Author, year | Aim | Drug - proto-ADE pairs\* |
| --- | --- | --- |
| Adrover C., 201526 | To assess proto-ADEs and associated personal feeling related to HIV-drug treatments by using publicly available data from social media.  | * efavirenz: sleep, psychological, neurological, gastrointestinal, liver and altered libido symptoms
* efavirenz-emtricitabina-tenofovir-disoproxil: sleep, psychological, neurological, gastrointestinal, liver, altered libido, rash, allergy, kidney symptoms
* tenofovir-emtricitabina: sleep, psychological, neurological, gastrointestinal, liver, altered libido, kidney symptoms
 |
| Benton A., 201136 | To identify proto-ADEs from online media related to four hormonal medications commonly used in the treatment of breast cancer. | * tamoxifene: hot flashes, breast cancer, menopause, pain, weight gain, joint pain, uterine cancer, fatigue, night sweat, depression
 |
| Bhattacharya M., 201744 | To identify new signals, known signals, signals sooner than notification, and specific issues (i.e., quality issues and patient perspectives) in social media and to determine the quantity of proto-ADEs and the type of drugs that would benefit from social media analysis. | * adalimumab: nausea, infection, injection site reaction, headache, burning sensation, antibody test abnormal, inflammation, drug tolerance, surgery, therapy naive, condition aggravated, abdominal symptom, malaise, fatigue, injection site pain, therapy change, drug ineffective, pain
 |
| Butt T.F., 201217 | To describe Internet narratives of drug-induced Stevens-Johnson syndrome and toxic epidermal necrolysis and to compare results with a previous study conducted by face-to-face interview. | * Stevens-Johnson Syndrome and toxic epidermal necrolysis: sulfonamides, penicillins, ibuprofen, carbamazepine, macrolides, cephalosporins, phenytoin, lamotrigine, tetracyclines
 |
| Coloma P.M., 201537 | To evaluate the potential contribution of mining social media networks for drug safety surveillance by using the following case study: rosiglitazone and cardiovascular events (i.e. stroke and myocardial infarction). | * rosiglitazione: cardiovascular events
 |
| Curtis J.R., 201718 | To characterize the demographics of people using social media to discuss rheumatoid arthritis and psoriatic arthritis and psoriasis, to evaluate the suitability of social media as a data source for drug safety research and to classify the content and timing of the posts with a particular focus on newer biologic drugs and small molecules in relation to the launch dates. | * tofacitinib, infliximbam golimumab, rituximab, adalimumab and etanercept: *Herpes zoster*
* tocilizumab, rituximab, adalimumab, infliximab, abatacept, certolizumab: Gastrointestinal perforation
 |
| Continued |
| De Castro N.M.L., 201843 | To analyse the volume and content of Tweets related to biological treatments for rheumatoid arthritis, ankylosing spondylitis and psoriatic arthritis. | * abatacept: administration adverse reactions, infections
* adalimumab: administration adverse reactions, general adverse effects, infections, skin reactions, allergic reactions, immunosuppression, neurologic adverse effects, gastrointestinal side effects, lupus, fatigue, pulmonary toxicity, onco-haematologic diseases, death, liver damage
* certolizumab: administration adverse reactions, general adverse effects, infections, allergic reactions, lupus
* etanercept: administration adverse reactions, general adverse effects, infections, skin reactions, allergic reactions, immunosuppression, fatigue, hair loss, cardiovascular side effect, genitourinary toxicity
* golimumab: allergic reactions, gastrointestinal side effects, headache, pulmonary toxicity
* infliximab: administration adverse reactions, general adverse effects, infections, allergic reactions, immunosuppression, neurologic adverse effects, gastrointestinal side effects, lupus, fatigue, headache, onco-haematologic diseases, death, hair loss, genitourinary toxicity
 |
| Duh M.S., 201619 | To assess in social media proto-ADEs related to atorvastatin and sibutramine as compared to those reported in FDA FAERS and to determine whether social media posts can be useful in accelerating the detection of drug-related ADEs as compared to FAERS reports. | * atorvastatin: Muscle or bone pain, joint pain, low energy, mental fog or memory loss, cramps, stomach or bowel issues, weakness, depression, insomnia, numbness, headache, vertigo, heart issue or chest pain, blurry vision, swelling, skin issue, anxiety, urinary issue, flu symptoms, mood swings
* sibutramine: dry mouth, headaches, insomnia, constipation, cardiac symptoms, anxiety or irritability, lack of efficacy, nausea, indigestion, excessive thirst, low energy, muscle or joint pain, hypertension, bad breath, depression, sexual dysfunction, sweating, skins lesions, shortness of breath
 |
| Continued |
| Feldman R., 201553 | To evaluate a text mining methodology for the detection of unreported ADEs and to examine whether signals reported by the FDA in the post marketing appear in health forum prior to the first notification. | * colesevelam hydrochloride, cholestyramine, colestipol hydrochloride: pain, muscle pain, flushing, heart attack, muscle damage, feeling weak, allergic reaction, liver failure, diabetes, cognitive impairment, leg pain, muscle problems, infection, leg cramps, cancer, head pain, stroke, burning sensation
* ezetimibe: pain, muscle damage, allergic reaction, diabetes, muscle problems, leg cramps, cancer, head pain
* fenofibrate, gemfibrozil, choline fenofibrate, colfibrate: pain, muscle pain, heart attack, muscle damage, feeling weak, allergic reaction, liver failure, diabetes, cognitive impairment, leg pain, muscle problems, infection, leg cramps, muscle weakness, head pain, heart problems, stroke
* niacin, icosapent ethyl, dextrothyroxine sodium, lomitapide mesylate, mipomersen sodium: pain, muscle pain, flushing, heart attack, muscle damage, feeling weak, allergic reaction, diabetes, cognitive impairment, leg pain, muscle problems, infection, leg cramps, muscle weakness, cancer, head pain, stroke
* ezetimibe/simvastatin, lovastatin/nicotinic acid, nicotinic acid/simvastatin, amlodipine besylate/atorvastatin calcium, aspirin and pravastatin, simvastatin/sitagliptin phosphate, atorvastatin calcium/ezetimibe: pain, muscle pain, flushing, heart attack, muscle damage, feeling weak, allergic reaction, liver failure, diabetes, cognitive impairment, leg pain, muscle problems, infection, leg cramps, cancer, head pain, heart problem, stroke, burning sensation
* lovastatin, rosuvastatin calcium, fluvastatin sodium, atorvastatin calcium, lovastatin, pravastatin sodium, simvastatin, pivastatin, cerivastatin sodium: pain, muscle pain, flushing, heart attack, muscle damage, feeling weak, allergic reaction, liver failure, diabetes, cognitive impairment, leg pain, muscle problems, infection, leg cramps, muscle weakness, cancer, head pain, heart problem, stroke, burning sensation
* citalopram hydrobromide: anxiety, weight gain, head pain, panic state, sleep disorder, allergic reaction, feeling weak, pain, tremors, agitation, nausea, sweating, seizure, dizziness, suicidality, sexual dysfunction, cognitive impairment, weight loss, mood swing, sleepiness
* venlafaxine: anxiety, weight gain, head pain, panic state, sleep disorder, allergic reaction, feeling weak, pain, tremors, agitation, nausea, sweating, seizure, dizziness, suicidality, sexual dysfunction, cognitive impairment, weight loss, mood swing, sleepiness
* desvenlafaxine succinate: anxiety, weight gain, head pain, sleep disorder, feeling weak, nausea, sweating
 |
| Continued |
|  |  | * bupropion hydrochloride: anxiety, weight gain, head pain, panic state, sleep disorder, allergic reaction, feeling weak, pain, tremors, agitation, nausea, sweating, seizure, dizziness, suicidality, sexual dysfunction, cognitive impairment, weight loss, mood swing, sleepiness
* alprazolam: anxiety, weight gain, head pain, panic state, sleep disorder, allergic reaction, feeling weak, pain, tremors, agitation, nausea, sweating, seizure, dizziness, suicidality, sexual dysfunction, cognitive impairment, weight loss, mood swing, sleepiness
* sertraline hydrochloride: anxiety, weight gain, head pain, panic state, sleep disorder, allergic reaction, feeling weak, pain, tremors, agitation, nausea, sweating, seizure, dizziness, suicidality, sexual dysfunction, cognitive impairment, weight loss, mood swing, sleepiness
 |
| Frost J., 201145 | To examine the prevalence of on-label versus off-label use, dosing, perceived effectiveness and side effects for amitriptyline and modafinil. | * modafinil: jittery feeling, dry mouth, anxiety
* amitriptyline: feeling sleepy, dry mouth, weight gain
 |
| Hadzi-Puric J., 201227 | To detect drug proto-ADE pairs from parenting websites using statistical methods based on different measures of disproportionality. | * loratadine: headache, somnolence, dry mouth, fatigue, appetite loss
 |
| Hoang T., 201646 | To detect cascades of drug prescriptions and proto-ADEs, defined as detrimental prescribing cascades, from social media. | * metoprolol - stroke 🡪 simvastatin - arrhythmia
* venlafaxine - stroke 🡪 simvastatin - hemorrhage
* celecoxib - hypertension 🡪lisinopril - depression
* venlafaxine - arthritis 🡪 meloxicam - hypertension
* trazodone - hypertension 🡪 prazosin - anxiety
* doxorubicin - pulmonary embolism 🡪 warfarin - myalgia
* lisinopril - pulmonary embolism 🡪 warfarin - myalgia
* ciprofloxacin - pulmonary embolism 🡪 warfarin - myalgia
* citalopram - pulmonary embolism 🡪 warfarin - myalgia
* clopidogrel - pulmonary embolism 🡪 warfarin - myalgia
 |
| Hughes S., 201125 | To describe the most frequently reported proto-ADEs of escitalopram and quetiapine in online consumer reviews, to compare them with those described in professionally controlled commercial health websites, and to gauge the usability of online consumer medication reviews. | * escitalopram: somnolence, new/worsened neurologic effects, weight gain, insomnia, nausea, sick stomach, vomiting, agitation, restless, dizziness, suicidal thoughts, hematologic effects
* quetiapine: somnolence, weight gain, brain fog, abnormal movements, dizziness, vision changes, suicidal thoughts, weakness, sexual dysfunction
 |
| Continued |
| Karimi S., 201520 | To detect possible proto-ADEs from patient comments in social media. | * diclofenac: diarrhea, nausea, vaginal bleeding, cramps, dizziness
* atorvastatin calcium: pain, fatigue, depression, muscle pain, memory loss
 |
| Koutkias V.G., 201721 | To validate a computational framework on specific case studies (clozapine-induced cardiomyopathy or myocarditis versus haloperidol-induced cardiomyopathy or myocarditis, and apixaban-induced cerebral haemorrhage) from data of several publicly sources (i.e. FAERS, PubMed, Twitter). | * clozapine: myocarditis, cardiomyopathy
* apixaban: cerebral hemorrhage
* haloperidol: cardiomyopathy
 |
| Leaman R., 201047 | To mine the association between drugs and proto-ADEs reported by patients in comments of health-related websites and to compare the frequency of these proto-ADEs to that documented in labels. | * carbamazepine: somnolence or fatigue, allergy, weight gain, rash, depression, dizziness, tremor/spasm, headache, appetite increased, nausea
* olanzapine: weight gain, somnolence or fatigue, appetite increased, depression, tremor, diabetes, mania, anxiety, hallucination, edema
* trazodone hydrochloride: somnolence or fatigue, nightmares, insomnia, addiction, headache, depression, hangover, anxiety attack, panic reaction, dizziness
* ziprasidone hydrochloride or ziprasidone mesylate: somnolence or fatigue, dyskinesia, mania, anxiety attack, weight gain, depression, allergic reaction, dizziness, panic reaction
* aspirin: ulcers, sensitivity, stroke, bleeding time increased, somnolence or fatigue, malaise, weakness, numbness, bleeding , tinnitus
* ciprofloxacin: abdominal pain, malaise, nausea, allergy, somnolence or fatigue, dizziness, weakness, tolerance, rash, yeast infection
 |
| Liu J., 201122 | To detect the association between statins and proto-ADEs from patient-provided drug reviews on health-related web sites. | * statins: muscle pain, pain, pain in legs, shoulder pain, back pain, neck pain, pain in arms, muscle cramps, general weakness, muscle weakness, difficulty walking, loss of muscle mass, general numbness, muscle spasms, rhabdomyolysis, tendinitis, balance problems, ALS (Amyotrophic Lateral Sclerosis), memory problems, Parkinson's disease, neuropathy, dementia, heart attack, liver damage, diabetes, stroke, arthritis, raised liver enzymes, heart failure, kidney failure, kidney damage, muscle problems, mobility problems, liver problems, pain, nerve problems, arthritis
 |
| Mao J.J., 201328 | To evaluate the volume and frequency of proto-ADEs related to aromatase inhibitors from internet message boards and to focus on the association between aromatase inhibitors and arthralgia, that is one of the most common side effect. | * aromatase Inhibitors: joint pain, bone pain, muscle pain, osteoporosis, weight gain, hair loss, mental depression, sleeplessness, headache, thyroid issues, dizziness, back pain
 |
| Continued |
| Moncrieff J., 200923 | To analyse posts about proto-ADEs associated to olanzapine, risperidone and older neuroleptics. | * older antipsychotics: Sedative effects, cognitive effects, emotional effects, akathisia, anxiety, depression, suicidal thoughts, euphoria, relaxation, calmness, sexual impairment, weight gain
* risperidone: Sedative effects, cognitive effects, emotional effects, akathisia, anxiety, depression, suicidal thoughts, euphoria, relaxation, calmness, sexual impairment, hormonal effects, weight gain, food craving
* olanzapine: Sedative effects, cognitive effects, emotional effects, akathisia, anxiety, depression, suicidal thoughts, euphoria, relaxation, calmness, sexual impairment, weight gain, food craving
 |
| Nguyen T., 201748 | To assess whether the rate of proto-ADEs detected in social media is comparable to the rate of known ADRs and to evaluate if the identification of additional terms related to proto-ADEs could improve the rate of the detected proto-ADEs. | * lorazepam, alprazolam, sertraline hydrochloride: asthenia, convulsion, diarrhea, drowsiness, headache, hypotension, muscle rigidity, somnolence, sweating, yawning
* citalopram hydrobromide: asthenia, convulsion, diarrhea, drowsiness, headache, hypotension, somnolence, sweating, yawning
* duloxetine hydrochloride: asthenia, convulsion, diarrhea, drowsiness, headache, hypotension, muscle rigidity, sweating, yawning
* trazodone hydrochloride: hypotension, muscle rigidity, somnolence
* venlafaxine hydrochloride: asthenia, convulsion, diarrhea, drowsiness, headache, hypotension, muscle rigidity, somnolence, sweating, yawning
* escitalopram oxalate, fluoxetine hydrochloride, bupropion hydrochloride: asthenia, diarrhea, drowsiness, headache, hypotension, muscle rigidity, somnolence, sweating, yawning
 |
| Continued |
| O’Connor K., 201452 | To detect the association between drugs and proto-ADEs reported in Twitter. | * quetiapine fumarate: somnolence, abnormal dreams, feel like a zombie, weight gain, restless leg syndrome, increased appetite, sleep paralysis, dizziness, psychosis, tremors
* venlafaxine hydrochloride: withdrawal syndrome, insomnia, headache, malaise, abnormal dreams, nausea, shaking, fatigue
* lisdexamfetamine dimesylate: insomnia, obsessive compulsive disorder, anger, heart racing, depression, psychosis, headache, feel weird
* paroxetine hydrochloride: withdrawal syndrome, weight gain, depression, headache, somnolence, allergic, feel sick, emotional
* fluoxetine hydrochloride: somnolence, withdrawal syndrome, feeling ill, abnormal dreams, suicidal thoughts, tremors, allergic reaction
* lamotrigine: insomnia, rash, lethargy, joint pain, feel like a zombie, feel sick
* olanzapine: weight gain, somnolence, increased appetite, dependence
* adalimumab: somnolence, feel sick, palpitations, ache/pains, joint pain, headache, rash, respiratory disorder
* duloxetine hydrochloride: withdrawal syndrome, fatigue, somnolence, dizziness, dry mouth, depression, rash, migraine
* trazodone: somnolence, abnormal dreams, hangover effect, headache, insomnia
 |
| Continued |
|  |
| Pages A., 201424 | To describe proto-ADEs related to oral antineoplastic agents reported in online discussions and to compare these with reports recorded by health professionals in the French pharmacovigilance database. | * oral antineoplastic protein kinase inhibitors: vascular disorders, skin and subcutaneous tissue disorders, respiratory disorders, thoracic disorders, mediastinal disorders, reproductive system disorders, breast disorders, nervous system disorder, musculoskeletal disorders, connective tissue disorders, metabolism and nutrition disorders, investigations, administration site conditions, gastrointestinal disorders, eye disorders, cardiac disorders, blood and lymphatic system disorders
* oral antineoplastic hormone antagonists: vascular disorders, skin and subcutaneous tissue disorders, reproductive system disorders, breast disorders, psychiatric disorders, nervous system disorder, musculoskeletal disorders, connective tissue disorders, investigations, administration site conditions, gastrointestinal disorders, eye disorders, blood and lymphatic system disorders
* anagrelide: chest pain, mitral valve disease
* anastrozole: dry eye, libido decreased, weight increased
* chlorambucil: dizziness, headache, petit mal epilepsy
* erlotinib: agueusia, gingival pain, haemoptysis, toothache
* everolismus: hypomagnesaemia
* exemestane: colitis, hand deformity, libido decreased, memory impairment, mood disorder, weight increased,
* hydroxycarbamide: augeusia
* imatinib: bone pain, osteoporosis, pelvic fluid collection, tendinitis, tooth fracture
* lenalidomide: hyperhidrosis
* letrozole: dermatitis bullous
* tamoxifene: ocular hyperaemia, weight increased
* temozolomide: oesophageal irritation
 |
| Continued |
| Patel R., 201849 | To detect and quantify proto-ADEs related to glucocorticoids from Twitter posts through an automatic detection system and to compare the frequency of proto-ADEs reported in Twitter to the frequency of ADR reports recorded in the UK spontaneous reporting system. | * prednisone and prednisolone: insomnia, weight increased, not-specific reaction, increased appetite, malaise, drug ineffective, swelling, alerted state of consciousness, fatigue, affect lability, restlessness, swelling face, anger, withdrawal syndrome, condition aggravated, irritability, weight decreased, anxiety, abdominal pain, somnolence, hyperhidrosis, abnormal dreams, abdominal distention, skin discomfort, depression, pyrexia, vomiting, death, diarrhea, diabetes mellitus, nausea, dizziness, rash, confusional state
 |
| Patki A., 20144 | To develop automatic classification techniques to identify proto-ADEs from health-related social media data and to validate this approach by evaluating if the probabilities estimated for the reported proto-ADEs can be useful for categorizing drugs. | * pregabalin: dizziness
 |
| Pierce, 201735 | To examine whether specific product-adverse event pairs were reported via social media before being reported to FAERS | * dronedarone – vasculitis
* ziprasidone – DRESS
* methylphenidate – priapism
* dimethyl fumarate – PML
 |
| Powell G.E., 201638 | To describe an approach of social media listening for pharmacovigilance purposes. | * salbutamol: tremor, chronic obstructive pulmonary disease, wheezing, bronchitis, pallor, pneumonia, dysesthesia, cough, restlessness, mobility decreased, lung disorders, palpitations, hemorrhoids, muscle twitching, infection, hear rate increased
 |
| Continued |
| Sampathkumar H., 201439 | To extract reports of proto-ADEs from messages in online healthcare forums and to match them with those reported in drug labels. | * lisinopril: cough, dizziness, headache, fatigue, cramps, diarrhea, nausea, rash, hearing loss, hair loss, shingles, fits
* prednisone: anxiety, insomnia, depression, dizziness, mood swings, weight gain, nausea, moon face, hives, acid reflux, avascular necrosis, dry mouth
* montelukast sodium: headache, infection, cough, fever, diarrhea, sinusitis, inflammation, Seizure, depression, nightmares, aggression, mood swings, suicide, suicidal thoughts
* topiramate: tingling, weight loss, memory loss, numbness, dizziness, tired, sleepy, hair loss , depression, stress, aches, anxiety, diarrhea, dry mouth, itching
* dextroamphetamine/amphetamine: depression, weight loss, headache, dizziness, dry mouth, insomnia, constipation, loss of appetite, death, seizures, high blood pressure, restlessness, anxiety, fatigue, addiction, mood swings, vomiting, nausea, hallucinations
* cortisone: headache, allergies, nausea, weight gain, depression, insomnia, high blood pressure, acne, atrophy, rash, anxiety, cramps, bleeding, back pain, dizziness, numbness, diarrhea
* venlafaxine hydrochloride: dizziness, headache, dizziness, headache, insomnia, vomiting, chills, diarrhea, tachycardia, weight gain, acne, shocks, hives, mood swings
* buprenorphine/naloxone: pain, insomnia, depression, chronic pain, sweats, headaches, anxiety, tired, restlessness, chills, weight gain, runny nose
 |
| Schröder S., 200729 | To identify proto-ADEs related to Parkinson’s disease treatments through the analysis of online outpatient forums.  | * antiparkinsonian agents - pramipexole, ropinirole, pergolide, cabergoline, levodopa, entacapone, tolcapone, carbidopa, rasagiline, selegiline and amantadine: dizziness, headache, migraine, insomnia, vivid dreams, sleepiness, sleep attacks, fatigue, depression, impaired memory/impaired concentration, hallucinations, aggressiveness, restlessness, hypersexuality, gambling, orthostatic hypertension, sweating , increased urge to urinate, dry mouth, musculoskeletal effects, diarrhea, constipation, increased appetite/weight gain, nausea, general eyesight problems/impairment of vision, loss of visual acuteness, electrocardiography changes, valvular changes/fibrosis, cardiac dysrhythmia, cardiac palpitations, breathing trouble, hacking cough, allergic skin reactions, oedema, wound healing problems, pigment disorders, loss of hair
 |
| Continued |
| Tafti A.P., 201750 | To develop a big data analytics strategy that mines the content of scientific articles and health-related web-based social media for detecting and identifying proto-ADEs. | * antihistamine: nausea
* antipsychotic: weight gain
* aspirin: bleeding, constipation, panic, rash
* atenolol: dizziness, hypotension, tiredness, vomiting, bradycardia
* dexamethasone: nausea, weight gain, vomiting
* diazepam: drowsiness, nausea
* dopamine: weakness, sleep problems, hypertension
* ephedrine: anxiety, hypertension
* gabapentin: diarrhea, constipation
* heparin: anemia
* ibuprofen: constipation
* lamotrigine: dizziness, vertigo
* lorazepam: dizziness, insomnia, amnesia
* melatonin: depression
* metformin: nausea, diarrhea, vomiting dizziness, abdominal pain
* methylphenidate: nervous feeling
* sildenafil: chest pain, myocardial infarction, sweating, nausea
* statins: fatigue, rhabdomyolysis
* warfarin: bleeding
* bupropion hydrochloride: dry mouth, sweating, nausea
 |
| Topaz M., 201651 | To compare data between electronic health records and social media about proto-ADEs related to aspirin and atorvastatin. | * aspirin: hives or other rash, bleeding, swelling, anaphylaxis, angioedema, bronchospasm or wheezing, shortness of breath, nose bleeds, itching, asthma, thrombocytopenia, anemia, tinnitus, arrhythmia, flushing, hypotension, Reye’s syndrome, hypoglycemia
* atorvastatin: musculoskeletal pain, cramps, hives or other rash, gastrointestinal upset, hepatotoxicity, weakness, tiredness, headaches, myositis, nausea or vomiting, diarrhea, swelling, itching, memory loss, cough, hair loss, shortness of breath, anaphylaxis, angioedema, bronchospasm or wheezing, renal toxicity, flushing, depression, thrombocytopenia, anemia, fever, arthritis, seizures, hypotension, Alzheimer
 |
| Continued |
| Vaughan Sarrazin M.S., 201442 | To examine perceptions and experiences about dabigatran used for atrial fibrillation in online comments reported by patients and caregivers. | * dabigratan: stomach discomfort, upper gastrointestinal discomfort, lower gastrointestinal discomfort, esophagus discomfort, new/worsening hemorrhoids, loss of appetite/weight loss, metallic taste in mouth, fatigue, headaches, dizziness, excessive sweating, feeling unusually cold, feeling usually warm, change in blood pressure, weight, gain, blood rushing to head, muscle or joint pain, swelling of feet/limbs, major or serious bleed, minor bleeding, fluid retention, difficulty urinating, kidney damage, confusion/disorientation, depression, psychiatric disorders, skin rash/itching, change in blood sugar level, blurry vision, chest pain/angina, abnormal liver tests, dry mouth, stroke/transient ischemic attack, shortness of breath/ difficulty breathing
 |
| Wu H., 201340 | To investigate the feasibility of exploiting social media discussions to discover unrecognized drug side effects. | * dextropropoxyphene/paracetamol: abnormal heart rhythm
* drospirenone/ethinyl estradiol: blood clot
* drospirenone/ethinyl estradiol: blood clot
 |
| Yang C.C., 201241 | To test the effectiveness of using association rule mining to extract proto-ADEs caused by certain drugs from online healthcare communities. | * clarithromycin: heart disease , diarrhea, cancer
* lansoprazole: diarrhea, heart disease, cancer
* fluvoxamine: heart condition, suicide, depression
* fluoxetine: suicidal, depression
 |
| Yang C.C., 201431 | To detect signals of proto-ADEs from online health communities. | * clarithromycin: diarrhea, heart disease, kidney disease
* lansoprazole: diarrhea, heart disease
* fluvoxamine: depression, suicide
* fluoxetine: depression
* tacrolimus: diarrhea, kidney disease
* adenosine: heart disease
* tadalafil: heart disease, depression
* pimecrolimus: diarrhea, depression
* insulin glargine: diarrhea, heart disease, kidney disease
* lisdexamfetamine dimesylate: depression, suicide, kidney disease
* methylphenidate hydrochloride: depression, suicide
* epoetin alfa: kidney disease
* gadolinium: kidney disease
* ziprasidone hydrochloride: depression, suicide
* heparin: diarrhea, heart disease, kidney disease
* eszopiclone: depression
* risperidone: depression, suicide
* simvastatin: diarrhea, heart disease, kidney disease
* simvastatin: diarrhea, heart disease, kidney disease
* olanzapine: depression, suicide
 |
| Continued |
| Yang H., 201330 | To detect drug-drug interaction signals from consumer contributed contents in online healthcare communities by using associations mining. | * quinidine – clarithromycin: arrhythmias
* quinidine – tacrolimus: arrhythmias
* quinidine – simvastatin: arrhythmias
* quinidine – simvastatin: arrhythmias
* ticlopidine – heparin: bleeding
* ticlopidine – luvox: bleeding
* gemfibrozil – simvastatin: myopathy
* gemfibrozil – simvastatin: myopathy
 |
| Yang H., 201532 | To detect the association between drugs and proto-ADEs and to perform a temporal analysis for detecting drug safety signals at the early stage. | * lansoprazole: diarrhea
* fluvoxamine: heart disease, suicidal thoughts
* fluoxetine: depression, suicidal thoughts
* simvastatin: kidney disease
* simvastatin: kidney disease
* tadalafil: stroke
* methylphenidate hydrochloride: blurred vision, hypertension
* heparin: diarrhea
* pimecrolimus: skin discoloration, cancer
* tacrolimus: cancer
 |
| Yeleswarapu S., 201433 | To detect potential proto-ADEs from FAERS, health-related websites and MEDLINE, to compare these with the label information of drugs and to evaluate by a statistical method the significance level of drug – proto-ADEs pairs. | * aspirin: hemorrhage, asthma, ulcer
* bupropion: weight loss
* carbamazepine: seizures, exanthema, lymphoma
* ibuprofen: pain, osteoarthritis, stomach ulcer
* morphine: Hashimoto disease, breathlessness, violent behavior
* olanzapine, ciprofloxacin: diverticulitis, acne vulgaris
* paroxetine, rosiglitazone: heart diseases, diabetes mellitus, coronary artery disease
* trazodone: back pain, sleep initiation and maintenance disorders, condylomata acuminata
* warfarin: international normalized ratio, hemorrhage, stroke
* ziprasidone: vomiting, tremor, psychotic disorders
 |
| Continued |
| Zheng Y., 201634 | To test a novel constrained information entropy approach to detect proto-ADEs in medical forum. | * norepinephrine: anxiety
* topiramate: migraine
* arthritis pain relief drugs: pain
* ibuprofen: headache
* lithium: pain
* gabapentin: pain
* azithromycin: bronchitis
* methadone: pain
* spironolactone: acne
* etanercept: psoriasis
* naproxen: pain
* pregabalin: pain
* clindamycin: acne
* moxifloxacin hydrochloride: sinusitis
* acetaminophen: pain
* cortisone: coccydynia
* analgesic: pain
* aripiprazole: polyuria
* antibacterial: infection
* modafinil: excessive daytime sleepiness
* ibuprofen: pain
* diphenhydramine hydrochloride: erectile dysfunction
* compazine: nausea
* vinorelbine tartrate: pain
* flecainide acetate: stress
* tramadol: dependence
* epinephrine: overdose
* celecoxib: arthritis
* moxifloxacin hydrochloride: bronchitis
 |
| \*Only drug - proto-ADE pairs reported as frequency or risk value were extractedDRESS: Drug reaction with eosinophilia and systemic symptoms; FAERS: FDA Adverse Event Reporting System; FDA: Food and Drug Administration; HIV-drug: Human Immunodeficiency Virus drug; PML: progressive multifocal leukoencephalopathy |