Supplemental Table 1: Patient characteristics, interventions and definitions/variables of persistence, adherence and discontinuation reported in the studies.

Author (year) and country (database)	Participants	Drug/intervention*	Definition of persistence/adherence/discontinuation and independent variables on persistence	Length of follow-up
Brostrøm and Hallas (2009)[1] Odense University Pharmacoepidemio-logical Database (OPED); Denmark) (1999–2006)	n=2477 Male: n=836 (33.8%) Female: n=1641 (66.2%) Mean age: 68.3 years[a]	Any prescription of OAB medication: flavoxate (n=21) oxybutynin TD (n=48) tolterodine (n=1478) solifenacin (n=774) trospium (n=271) darifenacin (n=52)	Patients who continued taking a particular drug for up to 7 years with no more than 120-day gaps were regarded as experiencing single-treatment episodes Variables: age, gender, prior use of OAB agents and use of anti-diabetic drugs	Up to 7 years
Chancellor et al (2013)[2] IMS Lifelink Database, Connecticut; USA (2005–2008)	n=103 250 Male: n≈25 916[a] (25.1%) Female: n≈77 334[a] (74.9%) Mean (SD) age: 58.7 (15.7) years	First (new) prescription of OAB medication in adults ≥18 years: tolterodine ER (n=43 881)[a] solifenacin (n=15 488)[a] oxybutynin (n=15 075)[a] darifenacin (n=10 532)[a] oxybutynin ER (n=10 325)[a] oxybutynin TD (n=2272)[a] tolterodine (n=2581)[a] trospium (n=2478)[a] trospium ER (n=413)[a]	To be considered a discontinuation, patients were required to have a gap of at least 45 days in therapy based on fill dates and days' supply Adherence rate was defined as the proportion of patients filling more than one prescription with an MPR of ≥80%	2 years
Chapple et al (2017)[3] Clinical Practice Research Datalink (CPRD); UK (2013–2014)	n=21 996 Male: n=6513 (29.6%) Female: n=15 483 (70.4%) Mean (SD) age: 63.9 (16.3) years	First (new) prescription of OAB medication in adults ≥18 years: mirabegron (n=1203) darifenacin (n=126) fesoterodine (n=1287) flavoxate (n=144) oxybutynin ER (n=1144) oxybutynin IR (n=5779) propiverine (n=95) solifenacin (n=8191) tolterodine ER (n=1561) tolterodine IR (n=1523) trospium chloride (n=943)	Treatment was defined as discontinued if the maximum allowable gap duration was at least 1.5 times the intended duration of the most recent prescription Adherence rate was defined as mean MPR at 12 months	1 year

Author (year) and country (database)	Participants	Drug/intervention*	Definition of persistence/adherence/discontinuation and independent variables on persistence	Length of follow-up
D'Souza et al (2008)[4] Undisclosed medical claims database; USA (1999–2004)	n=1117 Male: n≈206[a] (18.4%) Female: n≈911[a] (81.6%) Mean (SD) age: 55.7 (14.5) years	First index of an OAB medication in adults ≥18 years: oxybutynin ER (n=249) oxybutynin IR (n=108) tolterodine ER (n=454) tolterodine IR (n=306)	Persistence was measured as the proportion of patients continuing therapy for 12 months without discontinuing the index drug or switching to other OAB drugs Adherence rate was measured as the proportion of patients with an MPR of ≥0.80 Variables: age, gender, drug formulations and OAB-associated comorbidities (eg, falls/fractures, skin infections, UTIs, anxiety/depression)	1 year
Desgagné et al (1999)[5] Régie de l'assurance maladie du Québec (RAMQ) database; Canada (1994–1997)	n=6690 Male: n=2534 (37.9%) Female: n=4156 (62.1%) Mean age: 77.3 years[a]	Patients aged ≥65 years with at least one prescription claim (first index) of: oxybutynin (n=5718) flavoxate (n=972)	Persistence evaluated by percentage of patients refilling their initial prescription	Up to 4 years
Gomes et al (2012)[6] Canada (Ontario Drug Benefit database of prescriptions)	n=56 851[a] Male: n≈18 496 (32.5%)[a] Female: n≈38 355 (67.5%)[a] Mean age: 77.7 years[a]	Patients aged >65 years with a first index (new) claim of: oxybutynin IR (n=31 996) tolterodine ER/IR (n=24 855)	Persistence with treatment was defined by refills for the index drug within an interval defined by the duration specified on the prescription plus a 50% grace period	2 years
Gopal et al (2008)[7] UK (Health Improvement Network database of prescriptions) (1991–2005)	n=29 369 Male: n=0 (0%) Female: n=29 369 (100%) Mean (SD) age: 63.9 (16.8) years	Women aged ≥18 years prescribed anti-cholinergic medications: tolterodine IR tolterodine ER oxybutynin IR oxybutynin ER flavoxate terodiline trospium properivine solifenacin	Discontinuation was defined by no anticholinergic prescriptions issued within 90 days after the end of the last anticholinergic drug prescription Anticholinergic medications were considered discontinued at the time a patient switched to another medication or as above Variables: drug formulation	3 years

Author (year) and country (database)	Participants	Drug/intervention*	Definition of persistence/adherence/discontinuation and independent variables on persistence	Length of follow-up
Ivanova et al (2014)[8] OptumHealth Reporting and Insights claims database; USA (2007–2012)	n=10 318 Male: n≈2822 (27.4%)[a] Female: n≈7496 (72.6%)[a] Mean age: 51.6 years	Patients aged 18 to 64 receiving a new prescription of: darifenacin (n=970)[a] solifenacin (n=2662)[a] oxybutynin (n=2889)[a] tolterodine (n=3116)[a] trospium (n=454)[a] fesoterodine (n=227)[a]	Persisters were defined as patients who did not switch or discontinue the index antimuscarinic during the first 6 months after the treatment initiation date Discontinuation was defined by a gap of at least 60 days between refills within the first 6 months after the treatment initiation date Switching was defined as a changed prescription from the index antimuscarinic within the first 6 months after the treatment initiation date (with a gap of 60 days between the end of the day supply of the index antimuscarinic and the new antimuscarinic) Variables: age, gender, history of UTIs and index antimuscarinic	6 months
Johnston et al (2012)[9] Truven Health MarketScan® Database; USA (2004–2009)	n=73 120 Male: n=29 406 (40.2%) Female: n=43 714 (59.8%) Mean age: 69.0 years[a]	First index drug in OAB patients with or without diabetes, aged ≥18 years: darifenacin oxybutynin solifenacin tolterodine trospium	Persistence was measured as the number of days from the index date until a gap in OAB medication of ≥45 days Adherence was assessed using the interval-based (fixed time-period) MPR (adherent patients had an ≥80% MPR) Variables: age, gender and diabetes	1 year
Kalder et al (2014)[10] Disease Analyzer database (IMS Health); Germany (2005–2012)	n=26 834 Male: n≈9660[a] (36%) Female: n≈17 174[a] (64%) Mean (SD) age: 69.4 (13.2) years	First index (new) prescription in patients aged ≥18 years: darifenacin (n=1995) fesoterodine (=811) oxybutynin (n=3813) propiverine (n=2714) solifenacin (n=4844) tolterodine (n=1814) trospium (n=10 843)	Treatment discontinuation was defined as a period of 90 days without prescription of UI therapy but with at least one visit to the same doctor after 90 days Variables: age, gender, comorbidity burden (including diabetes) and antimuscarinic side-effects	3 years

Author (year) and country (database)	Participants	Drug/intervention*	Definition of persistence/adherence/discontinuation and independent variables on persistence	Length of follow-up
Kleinman et al (2014)[11] Human Capital Management Services [HCMS] Research Reference Database; USA (2001–2011)	n=2960 Male: n=878 (29.7%) Female: n=2082 (70.3%) Mean age: 46.6 years	First index of OAB medication in adults aged 18 to 64 years: darifenacin fesoterodine oxybutynin flavoxate[b] solifenacin tolterodine trospium hyoscyamine[b] imipramine[b]	Persistence was measured as the number of days from index UA prescription until first ≥30-day gap in UA medication supply Adherence was measured as the percentage of the annual post-index period with available medication	1 year
Krhut et al (2014)[12] Dept. of Urology and Dept. of Gynaecology and Obstetrics, University Hospital Ostrava; Czech Republic (2009–2010)	n=377 Male: n=52 (13.8%) Female: n=325 (86.2%) Mean (SD) age: 60.3 (13.8) years	First (new) index of OAB medication within patients attending hospital as an outpatient: trospium (n=189) propiverine (n=41) tolterodine ER (n=9) solifenacin (n=48) fesoterodine (n=90)	Persistence was assessed according to the patient records	1 year
Manack et al (2011)[13] Thomson Reuters MarketScan® Commericial and Medicare Supplemental Databases; USA (2002–2007)	n=46 271[c] Male: n=19 727 (42.6%) Female: n=26 544 (57.4%) Mean (SD) age: 62.5 (19.6) years	Patients with neurogenic bladder origin (such as spinal cord injury and multiple sclerosis) receiving an oral OAB medication	Continuation was defined as ≥365 days of OAB oral drug use beginning at the index date with ≤90 days between the end of therapy and end of eligibility Discontinuation was defined as ≥6 months of no OAB oral drug use between the end of therapy and the end of eligibility	1 year
Mauseth et al (2013)[14] The Norwegian Prescription Database; Norway (2004–2010)	n=32 178 Male: n=0 (0.0%) Female: n=32 178 (100.0%) No mean age reported. The majority of patients (60.5%) were aged ≥60 years	Adult patients aged ≥18 years with a first index (new) prescription of: tolterodine (n=12 389) solifenacin (n=13 682) darifenacin (n=4399) fesoterodine (n=1708)	Persistence defined as the population who had not discontinued the drug during a period of 365 days after the index date A switch was defined as a prescription for another of the drugs included in the study within 365 days after the index date Adherence was measured using MPR (sum of days of supply for all tablets purchased, except those received at the last fill, divided by the total number of days from the first to the last filling) Variables: age and initial antimuscarinic	1 year

Author (year) and country (database)	Participants	Drug/intervention*	Definition of persistence/adherence/discontinuation and independent variables on persistence	Length of follow-up
Nitti et al (2016)[15] Optum Database; USA (2010–2013)	n=2628 Male: n=602 (22.9%) Female: n=2026 (77.1%) Mean age: 57.3 years[a]	New and existing users aged ≥18 years treated with: mirabegron (n=380) tolterodine ER (n=2248)	Persistence was defined as a continuous supply of index drug until any 30-day period during which the patient did not have a supply of index drug Adherence: the proportion of days covered by the prescription was calculated using prescription fill dates and number of days' supply for each fill of a prescription	6 months
Pelletier et al (2009)[16] PharMetrics Patient-Centric Database; USA (2005–2006)	n=43 367 Male: n=9675 (22.3%) Female: n=33 692 (77.7%) Mean (SD) age: 51.1 (12.4) years	Adults aged ≥18 years receiving a first index (new) prescription of: tolterodine ER oxybutynin solifenacin darifenacin trospium	Adherence was measured by PDC over the 12-month post index period (adherent patients had an ≥80% PDC) Variables: age, gender and comorbidity burden (including COPD, congestive heart failure, diabetes, hypertension)	1 year
Perfetto et al (2005)[17] PharMetrics Patient-Centric Database; USA (2001–2003)	n=23 328 No patient demographics were reported	All patients with either a new diagnosis of OAB or new use of: tolterodine ER oxybutynin ER	Discontinuation rates were calculated	11 months
Sears et al (2010)[18] Military Health System; USA (2003–2006)	n=7858 Male: n=2357 (30.0%) Female: n=5501 (70.0%) Age was not reported	Military treatment facility enrollees prescribed: oxybutynin ER (n=136) oxybutynin IR (n=2003) tolterodine ER (n=4716) tolterodine IR (n=992)	Non-persistence was defined as patients who never refilled a prescription for any OAB medication during the 3-year study period Medication switch rate was calculated as the proportion of patients who changed medication or dose at least once Adherence was defined as the proportion of patients with an MPR of ≥80% Variables: gender and drug formulation	3 years
Sicras-Mainar et al (2016)[d,19] Primary care medical databases; Spain (2008–2013)	n=3094 Male: n≈1170[a] (37.8%) Female: n≈1924[a] (62.2%) Mean age: 54.0 years	Adults aged 20 to 64 with a first index (new) prescription of: fesoterodine (n=859) solifenacin (n=1330) tolterodine (n=905)	Discontinuation was defined as when the patient switched to another active substance, another drug was added (combination) or the medication was discontinued completely or discontinued for ≥60 days without renewal and ≥2 prescriptions Compliance was calculated using MPR Variables: concomitant medication (antidepressants, antibiotics) and index drug	1 year

Author (year) and country (database)	Participants	Drug/intervention*	Definition of persistence/adherence/discontinuation and independent variables on persistence	Length of follow-up
Sicras-Mainar et al (2015)[d,20] Primary care medical databases; Spain (2008–2013)	n=3094 Male: n≈1170[a] (37.8%) Female: n≈1924[a] (62.2%) Mean (SD) age: 54.0 (9.2) years	Adults aged ≥20 years with a first index (new) prescription of: fesoterodine (n=859) solifenacin (n=1330) tolterodine (n=905)	Persistence was defined as the time, measured in months, without stopping the initial treatment or switching to another medication at least 30 days after the initial prescription Compliance was defined according to ISPOR criteria and was calculated based on the MPR, which was evaluated from the first to the last prescription and represented the number of days of medication taken over the number of days in treatment (commencing from the start date)	1 year
Sicras-Mainar et al (2014a)[21] Primary care medical databases; Spain (2008–2010)	n=552 Male: n≈272[a] (49.2%) Female: n≈280[a] (50.8%) Mean (SD) age: 80.2 (4.0) years	Adults aged ≥75 years with a first index (new) prescription of: fesoterodine (n=58) solifenacin (n=252) tolterodine (n=212)	Persistence was defined as the time, in weeks, with no drop-out from initial treatment or with no switch to another medication at least 30 days following initial prescription Compliance was defined according to ISPOR criteria and was calculated based on the medication use/possession rate	1 year
Sicras-Mainar et al (2014b)[e,22] Primary care medical databases; Spain (2008–2010)	n=1971 Male: n=821 (41.7%) Female: n=1150 (58.3%) Mean (SD) age: 70.1 (10.6) years	Adults aged ≥18 years with a first index (new) prescription of: fesoterodine (n=302) solifenacin (n=952) tolterodine (n=717)	Discontinuation was defined by either the absence of prescription coverage for the initial therapy for the remainder of the 52-week follow-up period or a switch to an alternative antimuscarinic during this time-period Variables: index drug	1 year
Sicras-Mainar et al (2013)[e,23] Primary care medical databases; Spain (2008–2010)	n=1971 Male: n=821 (41.7%) Female: n=1150 (58.3%) Mean (SD) age: 70.1 (10.6) years	Adults aged ≥18 years with a first index (new) prescription of: fesoterodine (n=302) solifenacin (n=952) tolterodine (n=717)	Persistence was defined as patients who remained on treatment during the 52-week period following the index date Compliance was defined according to ISPOR criteria and was calculated based on the MPR	1 year
Suehs et al (2016)[24] Medicare Advantage Prescription Plan - Administrative Claims Data; USA (2007–2013)	n=46 140[a] Male: n=15 479[a] (33.5%)[a] Female: n=30 661[a] (66.5%)[a] Mean age: 75.5 years[a]	Adults aged 65 to 89 years[f] with a first index (new) prescription of any antimuscarinic OAB medication	Persistence was assessed as time in days from the index date to discontinuation of index antimuscarinic treatment Adherence was assessed as PDC with the index OAB treatment over three predefined post index observation periods: 3, 6, and 12 months Treatment discontinuation was identified using a permissible gap between refills of 15 days	1 year

Author (year) and country (database)	Participants	Drug/intervention*	Definition of persistence/adherence/discontinuation and independent variables on persistence	Length of follow-up
Sussman et al (2017)[25] Truven MarketScan® Claims Database; USA (2012–2013)	n=71 980[a] Male: n=21 225[a] (29.5%)[a] Female: n=50 755[a] (70.5%)[a] Mean age: 62.3 years[a]	Adults aged ≥18 years with a prescription of: mirabegron any anticholinergic OAB medication	Persistence was measured by evaluating treatment failure (defined as either treatment discontinuation or treatment switching). A medication supply gap of ≥30 days was used to define treatment discontinuation Adherence was defined as the PDC (ie, the number of days covered by the index therapy divided by the number of days between the index date and the end of the follow-up [365 days]). A PDC of <80% was considered nonadherent	1 year
Wagg et al (2012)[26] Prescription Database; UK (2007–2008)	n=4833 Demographics were not explicitly reported, the majority of prescriptions appeared to be issued to patients aged ≥60 years	Adults aged ≥40 years with a first index (new) prescription of: darifenacin flavoxate oxybutynin ER oxybutynin IR propiverine solifenacin tolterodine ER tolterodine IR trospium	Persistence was defined as the mean time [in days] until discontinuation (a gap in treatment exceeding 1.5 times than the length of the previous prescription without a refill)	1 year
Wagg et al (2015)[27] Canadian National Private Drug Plan Database; Canada (2013)	n=19 485 Male: n=4992 (25.6%)[a] Female: n=14 493 (74.3%)[a] Mean age not reported; the majority of patients (77.8%)[a] were aged ≥46 years	Adults aged ≥18 years with a first index (new) prescription of: mirabegron (n=1683) fesoterodine (n=1415) oxybutynin ER (n=1260) oxybutynin IR (n=5356) solifenacin (n=6032) tolterodine ER (n=3739)	Adherence was defined by the MPR over 1 year To calculate time to end of persistence (defined by a gap in therapy of ≥30 days or switching to another medication), prescription claims for a target drug were tracked for 12 months after the index claim date Variables: age, gender, treatment-naïve vs treatment-experienced, index antimuscarinic, number of coexisting medications	1 year
Wagg et al (2015)[28] IMS Brogan public and private prescription claims databases; Canada (2007–2012)	n=31 707 Male: n=9395 (29.6%)[a] Female: n=22 312 (70.4%)[a] Mean age not reported	Adult patients receiving a first index (new) prescription of: oxybutynin IR oxybutynin ER tolterodine IR tolterodine ER solifenacin darifenacin trospium flavoxate	Discontinuation was defined as patients experiencing a gap in therapy longer than 60 days	4 years

Author (year) and country (database)	Participants	Drug/intervention*	Definition of persistence/adherence/discontinuation and independent variables on persistence	Length of follow-up
Yeaw et al (2009)[29] PharMetrics Patient-Centric Database (pharmacy claims); USA (2005)	n=7722 Male: n=1686 (21.8%) Female: n=6036 (78.2%) Mean (SD) age: 43.7 (18.3) years	Adult patients receiving a first index (new) prescription of: tolterodine oxybutynin solifenacin darifenacin trospium bethanechol flavoxate hyoscyamine	Persistence was calculated for the post-index period until the patient discontinued therapy, was lost to follow-up due to disenrollment from the health plan (minimum of 12 months), or the maximum 24-month follow-up period ended, whichever event occurred first. A patient was considered persistent until an excessive gap in days supplied occurred; refill gaps of 30, 60, and 90 days were used to calculate persistence for all cohorts Adherence was measured using the PDC for each of the six drug class cohorts. This was calculated by taking patients' total days supplied of index class medications for the 360-day period following the index date and dividing by 360	2 years
Yu et al (2015)[30] California Medi-Cal administrative files; USA (1999–2002)	n=2496 Male: n=534 (21.4%) Female: n=1962 (78.6%) Mean (SD) age: 63.15 (16.14) years	Adult patients aged ≥18 years receiving a prescription of an OAB drug, including: tolterodine (n=1093) oxybutynin ER (n=524) oxybutynin (n=812) other OAB agents (n=67)	Persistence was measured by the length of continuous pharmacological treatment (patients discontinued their treatment if they failed to refill OAB/UI agents within 30 days after the expected end date of the previous prescription) Patients who switched from one agent of OAB/UI drug to another within 30 days were considered persistent on therapy. Adherence was defined as MPR over 181 days for the 6-month follow-up period Variables: age, gender, ethnicity, index drug, OAB-associated comorbidities (UTIs), medication use history, length of hospital stay and number of drug classes prescribed	1 year

COPD = chronic obstructive pulmonary disease; ER = extended release; ISPOR = International Society for Pharmacoeconomics and Outcomes Research; IR = immediate release; MPR = medication possession ratio (measured as the proportion of days with any OAB medication on hand, over the length of the evaluation period); OAB = overactive bladder; PDC = proportion of days covered; PIM = potentially inappropriate medication; SD = standard deviation; TD = transdermal; UA = urinary antispasmodic; UI = urinary incontinence; UTIs = urinary tract infections

*The sum of the patients prescribed individual drugs may not match the total number of patients perhaps due to switching in some studies

[a]Calculated from data presented in the article; [b]used only in an OAB context; [c]26 922 continued, discontinued or restarted an OAB medication in the study period, but no demographics for this specific sub-group are reported; [d]Sicras-Mainar et al (2016)[19] and Sicras-Mainar et al (2015)[20] relate to the same patient group in terms of demographics and the timeframe/geographical source of adherence/persistence data; [e]Sicras-Mainar et al (2014)[22] and Sicras-Mainar et al (2013)[23] relate to the same patient group in terms of demographics and the timeframe/geographical source of adherence/persistence data; [f]this cohort was split into two groups – patients who were assigned OAB medication appropriately [non-PIM], or potentially inappropriately [PIM]. Inappropriateness was defined as patients having "drug–disease or syndrome interaction or indication of significant anticholinergic medication burden at the time of initiation of an antimuscarinic OAB treatment"

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