

## Characteristics of included studies for type 1 DM.

Study and country	Observation time, number of participants and design	Treatment of type I DM <sup>a</sup>	Patients characteristics <sup>a</sup>
Bruttomesso 2002 <i>Italy</i>	Mean 7.4 years N= 138 Retrospective	Insulin pump	Adults, age at CSII start, (mean): 33.1 (11.74) years Duration of diabetes, (mean): 13.1 (8.22) years Patients treated with continuous subcutaneous insulin infusion for (mean):: 7.4 (4.70) years
DAFNE, Keen 2012 <i>UK</i>	1 year N=124 Prospective	Basal long-acting insulin analogue + bolus insulin	Adults, mean age: 42.5 (11.1) years Diabetes mean duration: 17.8 (11.0) years
de Bock 2012 <i>New Zeland</i>	3 years N=621 (N=75 on CSII) Retrospective	Insulin pump	Children, mean age at diagnosis: 6.0 (3.6) years Previous treatment: patients had to use CSII for at least 12 months
Garg 2004a <i>USA</i>	Mean 13.1 months N=292 Retrospective	Basal long-acting insulin analogue + bolus insulin	Adult, mean age: 32 (10.0) years Diabetes mean duration: 15.9 (10.3) Previous treatment: at least 1 year of insulin therapy prior to beginning insulin glargine therapy and receiving intensive insulin therapy including at least four insulin injections per day with premeal short-acting insulin lispro or insulin aspart
Garg 2004b <i>USA</i>	Follow-up period: from April 2001 to March 2003 13.1 months (basal bolus analogue group), N=98 12.7 months (basal bolus human group), N=98  Retrospective	Basal long-acting insulin analogue + bolus insulin  Human basal insulin + bolus insulin	Adults, mean age of patients in basal bolus analogue and human group, respectively: 33.4 (10.1) and 31.1 (8.7) years Diabetes duration, mean: 16.0 (10.4) and 16.8 (9.2) years Previous treatment with NPH in basal-bolus regimen

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Garg 2004c USA	13.1 months, insulin glargine, N=299 11.6 months insulin pump, N=216  Retrospective	Basal long-acting insulin analogue + bolus insulin  Insulin pump	Adults, mean age: 32.0 (10.2) years Diabetes duration, mean: 16.3 (9.9) years  Previous therapy: at least 1-year of insulin therapy followed by using of insulin pumps or insulin glargine; treatment with insulin glargine as their only basal insulin for at least 6 months
Hartemann-Heurtier 2003 France	1 year N=110 Prospective	Human basal insulin + bolus insulin	Adults, mean age 45 (13) years Diabetes duration, mean 17 (11) years Previous therapy: regular human insulin before each meal (multiple injection/intensive therapy)
Hendrieckx 2014 Australia	6 months N=422 (N=109 on insulin pump) Retrospective	Insulin pump	Adults, mean age in total sample: 37.5 (SD=15.0) Diabetes mean duration in total sample: 18.4 (SD=11.9)
Herwig 2007 Germany	1.68 years (mean) N=142 Prospective	Basal long-acting insulin analogue + bolus insulin  Human basal insulin + bolus insulin	Children, age (range): 5-18 years Duration of diabetes: >1 year
INTERPRET Austria, Belgium, Czech Republic, Denmark, France, Hungary, Israel, Italy, Lithuania, Poland, Serbia, Slovakia, Slovenia, Spain, Sweden	12 months N=274 Prospective	Insulin pump	Children and adults, mean age: 28.04 (SD=15.55) years Diabetes mean duration: 13.87 (SD=10.67) years Previous treatment: patients had to use CSII for at least 6 months
Jakisch 2008 Germany, Austria	3 years N=828 (N=412 on insulin pumps) Prospective, multicentre, matched pair cohort analysis	Insulin pump	Children, mean age: 10.9 years (median 11.4; iqr: 8.7-13.7) Mean duration of diabetes: 3.5 years (median 2.7; iqr 1.3–5.2) Previous treatment: conventional or multiple daily injections

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Kapellen 2007 <i>Germany, Austria</i>	33 months N=1567 Retrospective	Insulin pump	Children and adolescents, mean age: 12.2 (4.2) years Mean duration of diabetes: 5.2 (3.5) years
Kapellen 2009 <i>Germany, Austria</i>	12 years – 1-year assessment of SHEs after switching to insulin analogue (short- or long-acting) N=37 206 (N=6558 on BB with long-acting insulin analogue) Retrospective	Basal long-acting insulin analogue + bolus insulin	Children, mean age: 13.3 (4.4, all participants, not only from these 2 groups considered in the SR) years Diabetes duration, mean: 5.2 (4.1, all participants) years Patients had to be on insulin therapy for at least 2 years
Katz 2012 <i>USA</i>	0.9 year (basal-bolus group), N=50 1.57 year (CSII group), N=93 Prospective	Insulin pump  Basal long-acting insulin analogue + bolus insulin	Children: median 12.2 (range 9.0–15.0) years Diabetes duration median 4.4 (range 1.0–13.0) years To be included in the study patients had to be treated with: CSII; pump therapy, a basal insulin analogue (detemir or glargine) or NPH
Kristensen 2012 <i>Denmark</i>	1 year N=3137 (N=1052 on basal insulin analogue and N=2085 on human insulin) Retrospective	Basal long-acting insulin analogue + bolus insulin  Human basal insulin + bolus insulin	Adults, mean age: 48.0 (14.8) years Diabetes duration, median 22 (range 0-73) years
Laubner 2014 <i>Austria, Germany</i>	Follow-up period: from January 2000 to September 2011 N=14 681 Retrospective	Basal long-acting insulin analogue + bolus insulin  Human basal insulin + bolus insulin	Adults, mean age: 37.7 (SD=19.8) years Diabetes mean duration: 14.9 (SD=12.8) years Previous treatment: insulin therapy
Leckie 2005 <i>Scotland</i>	1 year N=243 Prospective	Human basal insulin + bolus insulin	Adults, range: from 20 to 69 years Diabetes duration: n.a. Previous therapy: n.a.

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Levy-Shraga 2013 <i>Israel</i>	Mean 9.6 (SD=7.0) years N=113 (26 patients in considered group) Retrospective	Insulin pump	Children, (Group 1 with CSII initiation before age 6 years) mean age at diagnosis: 2.4 (SD=1.3); mean age at CSII initiation: 3.4 (SD=1.4) years Diabetes mean duration: 4.7 (SD=2.5) years
Leinung 2010 <i>USA</i>	1 year N=117 Retrospective	Insulin pump	Adults, mean age 44.5 (12.8, range: 14.3-71.7, median: 46) years Diabetes duration, mean 23.9 years Patients were using insulin pumps before index date (i.e. initiation of CGM)
Maiorino 2014 <i>Italy</i>	12 weeks N=125 (N=38 on insulin pump) Prospective	Insulin pump	Young adults, mean age in CSII group: 21.7 (SD=2.3) years Diabetes mean duration: 9.1 SD=4.0) years Previous treatment: multiple daily injections
Maltoni 2013 <i>Italy</i>	Follow-up period: from January 1990 to December 2010 – 2212.9 patient-years (49.5 patient-years in insulin pump group) (N=36 on insulin pump) N=269 Retrospective	Insulin pump	Children and young adults, mean age at T1DM onset: 7.6 (SD=4.1) years
Muller-Godeffroy 2009 <i>Germany</i>	0.5 year N=114 Prospective	Insulin pump	Children, mean age: 10.5 (3.7) years Diabetes duration, mean: 3.8 (2.9) years Previous treatment: short-acting analogue, NPH, semilente or long-acting analogues
Nimri 2006 <i>Israel</i>	1 year N=279 Retrospective	Insulin pump	Children, median age: 5.4 (range 1.6–8.6) years Adolescents, median age: 13.7 (range 9–17) years Adults, median age: 22.8 (range: 17–40) years Previous therapy, multiple daily injections with mean duration: 8.3 (6.9) years Duration of CSII: 2.4 (1.8 ) years
PREDICTIVE Marre 2009 <i>France</i>	1 year N=1772 (N=643 with type 1 diabetes) Prospective	Basal long-acting insulin analogue + bolus insulin	PREDICTIVE French cohort Adults, mean age (SD): 47.1 (16.1) years Diabetes mean duration (SD): 17.0 (12.0) years

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PREDICTIVE Preumont 2009 <i>Belgium</i>	0.5 year N=232 Prospective	Basal long-acting insulin analogue + bolus insulin	PREDICTIVE Belgian cohort - only patients who were previously treated with NPH or glargine as basal insulin Adults, mean age (SD): 45 (15) years Diabetes mean duration (SD): 18 (13) years
PREDICTIVE Sreenan 2008 <i>Austria, Czech Republic, Denmark, Finland, Germany, Ireland, Israel, the Netherlands, Sweden, Turkey, UK</i>	12 weeks prospectively and 4 retrospectively N=3637 (N=1500 with type 1) Prospective with retrospective assessment	Basal long-acting insulin analogue + bolus insulin  Human basal insulin + bolus insulin	PREDICTIVE – only patients who were previously treated with NPH as basal insulin <sup>b</sup> Adults, mean age (SD): 40.9 (17.2) <sup>b</sup> Diabetes mean duration (SD): 14.1 (11.5)
PREDICTIVE Yenigun 2008 <i>Austria, Czech Republic, Denmark, Finland, Germany, Ireland, Israel, the Netherlands, Sweden, Turkey, UK</i>	12 weeks prospectively and 4 retrospectively N=1285 (N=508 with type 1) Prospective with retrospective assessment	Basal long-acting insulin analogue + bolus insulin	PREDICTIVE – only patients who were previously treated with glargine as basal insulin Adults, mean age: 44.45 years Diabetes mean duration: 18.85 years
Reda 2007 <i>New Zealand</i>	315 patient-years; mean 3 years  N=105 Retrospective	Insulin pump	Adults and children, mean age at CSII start: 33.1 (15.9; range 6.5-66.2) years Diabetes duration, mean at CSII start: 18.2 (10.9; range 2-47) years Previous therapy: patients had to be on CSII from at least 1 year, mean CSII duration: 3.0 (2.6); switched from MDI, mean duration: 7.2 (4.6)
Rudolph 2002 <i>USA</i>	36.1 months N=107 Retrospective review of medical records	Insulin pump	Adults, mean age 36.0 (10.4) years Diabetes duration at the CSII initiation 17.0 (9.1) years Patients had to receive CSII therapy with more than 2 visits for clinical data collection

Study and country	Observation time, number of participants and design	Treatment of type I DM <sup>a</sup>	Patients characteristics <sup>a</sup>
Scaramuzza 2011 <i>Italy</i>	1.7 years, retrospective 1.4 years, prospective N=622 (N=493 on insulin pump) Multicenter, observational before-after study	Insulin pump	Children, mean age: 12.9 (3.4) years Diabetes duration, mean: 6.2 (3.3) years Children on pump therapy for mean 1.7 (0.5) years
Scheidegger 2007 <i>Switzerland</i>	104 patient-months N=159 Prospectively	Insulin pump	Adults, mean age: 42.8 (11.2) years Diabetes duration, mean: 18.2 (11.0) years Patients previously treated with MDI
Wood 2006 <i>USA</i>	3.8 years of follow-up N=161 Prospective	Insulin pump	Children and young adults, mean age: 14.1 (3.7; range 3.7-21.7), years Diabetes duration, mean: 7.1 (4.0; range 0.7-16.7), years Previous therapy: n.a.; patients had to start CSII therapy between 1 Jan 1998 and 31 Dec 2001
Ziegler 2013 <i>France, Germany, Italy, Spain, Sweden</i>	6 months N=299 Prospective	Insulin pump	Adults, mean age: 39.4 (SD=15.2) years CSII mean duration: 7.0 (SD=5.2) years Previous treatment: patients had to use CSII for at least 6 months
<sup>a</sup> Data are presented only for patients groups treated according with scheme assumed in the SR and with type 1 DM unless no separate data on a group of interest was available (then characteristics of a whole study are shown). Means are presented with SD (if available).			

## Characteristics of included studies for type 2 DM.

Study and country	Observation time, number of participants and design	Treatment of type II DM <sup>a</sup>	Patients characteristics <sup>a</sup>
A <sub>1</sub> chieve, Home 2011 <i>China; South Asia (Bangladesh, India, Pakistan); East Asia (Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan); north Africa (Algeria, Morocco, Tunisia, Libya); Middle East/Gulf (Egypt, Iran, Jordan, Turkey, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE, Yemen); Latin America (Argentina, Mexico), Russia</i>	24 weeks N=66 726 (N=40 909 on biphasic insulin analogue, N=15 545 on BOT with long-acting insulin analogue, N=4105 on BB with long-acting insulin analogue) International, prospective, multicentre, non-interventional, observational study	Pre-mix insulin analogue ± OADs Basal long-acting insulin analogue ± OADs Basal bolus with basal long-acting insulin analogue ± OADs	Adult, mean age: 54.0 (12.0) years Diabetes mean duration: 8.0 (6.2) years Previous treatment: prior to enrolment in the study, 58.2% of patients were being treated with OADs alone, 23.8% were receiving OADs + insulin therapy, 8.1% insulin only and 9.0% no medication for diabetes
A <sub>1</sub> chieve, El-Naggar 2012 <i>China, South Asia, East Asia, North Africa, Middle East/Gulf</i>	24 weeks N=6323 Prospective	Pre-mix insulin human Pre-mix insulin analogue	Adults, mean age: 55.4 (12.5) years Diabetes mean duration: 11.1 (6.6) years
A <sub>1</sub> chieve, El-Naggar 2013 <i>Gulf</i>	24 weeks N=10 704 (N=6153 in insulin-naïve group and N=4551 in prior insulin users group) Prospective	Pre-mix analogue	Adults, mean age of insulin-naïve and prior insulin users group, respectively: 50.4 (9.7) and 51.5 (12.6) years Diabetes mean duration of insulin-naïve and prior insulin users group, respectively: 8.5 (5.1) and 11.7 (6.5) years
Andayani 2010 <i>Indonesia</i>	6 month N=115 (N=49 received SU) Prospective	Sulfonylurea	Adult, mean age: 62.84 (7.85) years Diabetes duration, mean 11.92 (6.09) years Patients failing with oral antidiabetic medication
Aung 2012 <i>Scotland</i>	1 year N=1066 Cross-sectional, population-based study	Sulfonylurea	Adult, mean age: 67.9 (4.2) years Diabetes mean duration: 8.1 (6.5) years

<p>BIAsp Start, Berntrop 2011 <i>Sweden</i></p>	<p>27 weeks N=1154 Prospective, observational, multicentre study</p>	<p>Pre-mix insulin analogue ±OADs</p>	<p>Adult, mean age: 65 (11.5) years Diabetes mean duration: 8.1 (6.2) years Previous treatment: patients with or without previous OAD treatment</p>
<p>Biesenbach 2006 <i>Austria</i></p>	<p>1 year N=154 (N=34 on BB with NPH) Retrospective</p>	<p>Basal bolus with NPH ±OADs</p>	<p>Adult, mean age: insulin only: 67.7 (11.9) and 68.5 (9.2); SU + insulin 73.7 (8.9) years Diabetes duration, mean: insulin only 9 (range 3-12) and 8 (2-9); SU + insulin 7 (2- 8) years Patients newly treated with insulin due to failure of secondary SU treatment</p>
<p>Buturovic 2013 <i>Bosnia and Herzegovina</i></p>	<p>9 months N=278 Prospective</p>	<p>Basal bolus with basal long-acting insulin analogue</p>	<p>Adults, mean age: 60.2 (SD=8.8) years Diabetes mean duration: 10.1 (SD=6.4) years Previous treatment: at least 2 daily injections of pre-mixed insulin for at least 6 months</p>
<p>Danish BIAsp Study Group, Breum 2008 <i>Denmark</i></p>	<p>26 weeks N=421 Prospective</p>	<p>Pre-mix insulin analogue ± OADs</p>	<p>Adult, mean age: 62.0 (11.4) years Diabetes mean duration: 9.1 (8.1) years Previous treatment: 199 subjects were prior insulin users and 193 were insulin naïve patients</p>
<p>EARLY, Hanefeld 2012 <i>Germany</i></p>	<p>24 weeks N=1438 (N=1389 on BOT with long-acting insulin analogue) Prospective</p>	<p>BOT with long- acting insulin analogue</p>	<p>Adult, mean age: 65.56 (10.68) years Diabetes duration, mean: 7.06 (5.45) years Patients treated with maximally tolerated metformin doses for at least three months</p>
<p>Echtay 2013 <i>Israel, Jordan, Pakistan, Lebanon</i></p>	<p>24 weeks N=2155 Prospective</p>	<p>BOT with long- acting insulin analogue</p>	<p>Adults, mean age: 57.2 (SD=11.0) years Diabetes mean duration: 9.2 (SD=5.4) years Previous treatment: at least one oral anti- diabetic drugs (metformin, sulfonyleureas, repaglinide, thiazolidinediones)</p>



Exhype, Pettersson 2011 <i>Sweden</i>	6 months N=430 Retrospective	Sulfonylurea	Adult, mean age: 69.0 (9.5) years Diabetes duration >7 years: 71% of patients Participants had to be treated with metformin and SU for at least 6 months (insulin naive)
FINE, Tsai 2011 <i>Bangladesh, China, Hong Kong, India, Indonesia, Korea, Pakistan, Singapore, Taiwan, Thailand, Vietnam</i>	6 months N=2679 (N=2077 on BOT with long acting-insulin analogue and N=589 on BOT with NPH) Multinational, prospective, observational study	Basal long-acting insulin analogue ±OADs Basal NPH ±OADs	Adult, mean age: 56.4 (11.2) years Diabetes mean duration: 9.3 (6.5) years
Furlong 2002 <i>UK</i>	29 months (median) N=208 Retrospective	BOT with NPH	Adult, mean age: metformin 58.6 (9.0), SU 64.3 (9.6) years Diabetes duration: metformin 7 (1-25), SU 9 (1-29) years Patients inadequately controlled with OADs
Gomez-Peralta 2012 <i>Spain</i>	6 months N=131 Retrospective	BOT long-acting analogue	Adults, mean age: 68.2 (9.4) years Diabetes mean duration: 12.7 (6.9) years
Gu 2012 <i>China</i>	16 weeks N=660 Prospective, open-label, multicentre, observational	Pre-mix human insulin ± OADs	Adult, median age: 61.9 (iq: 52.7, 71.4) years Diabetes duration, median: 6.7 (ig: 3.7, 10.2) years Patients treated with ≥2 OADs (≥1 insulin secretagogue) and insulin-naive
Guo 2013 <i>China</i>	16 weeks N=391 Prospective	Sulfonylurea	Adults, mean age: 53.1 (SD=10.3) years Diabetes mean duration: 22.5 (SD=38.8) months Previous treatment: none

Honkasalo 2010, Honkasalo 2011 <i>Finland</i>	1 year N=680 (N=431 with type 2 diabetes) Retrospective	Basal NPH ± OADs	Adult, median age: 53.1 (8.6) years Diabetes duration: n.a.
IMPROVE, Gumprecht 2009 <i>Canada, China, Greece, Gulf region, India, Iran, Italy, Japan, Poland, Russia, South Korea</i>	13 weeks N=748 (N=497 on prestudy BOT with NPH and N=245 on prestudy BOT with long acting-insulin analogue) Only results of retrospective assessment are included in the SR	Basal long-acting insulin analogue ±OADs (prestudy) Basal NPH ± OADs (prestudy)	IMPROVE – only patients who were previously treated with basal insulin Mean age (SD): 59.7 (11.8) years Mean diabetes duration (SD): 11.4 (7.3) years
IMPROVE, Khader 2010 <i>Saudi Arabia, United Arab Emirates, Kuwait, Qatar and Oman</i>	6 months N=1613 Prospective	Pre-mix insulin analogue ±OADs	IMPROVE - Gulf region, all patients Mean age (SD): 50.5 (10.4) years Mean diabetes duration (SD): 10.1 (5.8) years
IMPROVE, Shah 2009 a <i>Canada, China, Greece, Gulf region, India, Iran, Italy, Japan, Poland, Russia, South Korea</i>	13 weeks N=3856 Only results of retrospective assessment are included in the SR	Pre-mix human insulin ±OADs	IMPROVE – only patients who were previously treated with biphasic human insulin 30 ±OADs Mean age (SD): 57.0 (11.5) years Mean diabetes duration (SD): 10.7 (6.9) years
IMPROVE, Valensi 2009 <i>Canada, China, India, Japan, Poland, Russia, Greece, Italy</i>	6 months N=52 419 Prospective	Pre-mix insulin analogue ±OADs	IMPROVE – 8 countries, all patients Mean age (SD): 55.3 (11.9) years Mean diabetes duration (SD): 7.0 (6.1) years
INITIATEplus, Oyer 2011 <i>USA</i>	24 weeks N=4875 Multicenter, open-label, prospective study	Pre-mix insulin analogue ±OADs	Adult, mean age: 54.0 (2.01) years Diabetes mean duration: n.a. Previous treatment: n.a.

Ivanyi 2012 <i>Hungary</i>	132 weeks N=155 Prospective	Sulfonylurea	Adult, range: 20-75, mean age 58.7 (9.0) years Diabetes duration, mean: 9.1 (5.9) years Patients treated with metformin, SU or both
JDDM23, Oishi 2012 <i>Japan</i>	6 months N=153 Prospective with 12-week retrospective assessment	Basal bolus with NPH ± OADs Basal bolus with long-acting insulin analogue ± OADs	Adult, mean age: 60.2 (10.8) years Diabetes mean duration: 13.6 (9.2) years Previous treatment: NPH insulin
Kawamori 2008 <i>Brazil (Japanese patients)</i>	0.46 year N=100 Prospective	BOT with long-acting insulin analogue	Adult, mean age: 58.4 (7.7; median 59.0) years Diabetes duration, mean: 11.5 (6.6) years Patients inadequately controlled with SU (± other OAD); glimepiride was used for at least 2 months before study
Klen 2014 <i>Slovenia</i>	3 months N=156 Prospective	Sulfonylurea	Adults, mean age: 63.6 (SD=7.7) years Diabetes mean duration: 10.6 (SD=7.1) years Previous treatment: sulphonylurea in monotherapy or in combination with metformin for at least six months
Kulzer 2014 <i>Germany</i>	1771 respondent-weeks N=614 (N=91 with T2DM on long-acting insulin only; N=253 with T2DM on short- and long-acting insulin) Retrospective	Basal long-acting insulin analogue Basal bolus with basal long-acting insulin analogue	Adults, mean age in T2DM group: 53.10 (SD=12.23) years Diabetes average duration in T2DM group: 11.6 (SD=8.6) years Previous treatment: insulin
Laubner 2014 <i>Austria, Germany</i>	Follow-up period: from January 2000 to September 2011 N=37 283 Retrospective	Basal bolus with basal long-acting insulin analogue Basal bolus with NPH	Adults, mean age: 71.2 (SD=11.3) years Diabetes mean duration: 14.6 (SD=9.7) years Previous treatment: insulin therapy

Levit 2011 <i>Israel</i>	Mean (SD) 2.9 year (0.9) N=115 Retrospective	Pre-mix insulin analogue ± OADs	Adult, mean age: 62.4 (12.2) years Diabetes duration: 10.1 (8.0) years Prior therapy: one or more OADs or insulin therapy (basal, prandial, basal-bolus)
LIGHT, Verges 2012 <i>France</i>	3 months N=2541 Longitudinal, observational study	BOT with long- acting insulin analogue	Adult, mean age: 63.7 (10.1) years Diabetes mean duration: n.a.
Ligthelm 2009 <i>Denmark</i>	18 months N=150 Prospective	Pre-mix insulin analogue ± OADs	Adult, mean age of insulin naïve group, NPH group, insulin glargine group and BHI 30 group, respectively: 56.7 (range 34–79), 59.4 (range 41–77), 59.4 (range 41–77) and 60.7 (range 51–78) years Diabetes mean duration of insulin naïve group, NPH group, insulin glargine group and BHI 30 group, respectively: 6.7 (range 4.2–9.7), 8.3 (range 6.5–14.3), 7.8 (range 4.4–9.6) and 10.9 (range 7.1–18.2) years
Makela 2012 <i>Finland</i>	26 weeks N=557 Observational, non- interventional, non- randomised, open-label, prospective	Pre-mix insulin analogue ± OADs	Adult, mean age: 65.8 (range 30.0–90.0) years Diabetes mean duration: 11.4 (6.9) years
Nakashima 2013 <i>Japan</i>	48 weeks (3x16 weeks) N=135 Prospective	Pre-mix insulin analogue	Adults, mean age: 60.3 (SD=10.2) years Diabetes mean duration: 11.4 (SD=7.1) years Previous treatment: OADs for at least 90 days prior to the start of the study and no insulin therapy within 6 months prior to the study

Nobels 2012 <i>Belgium, Luxembourg</i>	26 weeks N=592 Prospective with 4-week prestudy data	Pre-mix insulin analogue ± OADs Pre-mix human insulin ± OADs	Adult, mean age: 68.0 (10.6) years Diabetes mean duration: 14.6 (8.9) years Previous treatment: BHI therapy
Obstacle Hypoglycaemia Study, Kalra 2013 <i>India</i>	12 weeks N=1069 Prospective	Sulfonylurea	Adults, mean age: 52.21 (SD=10.70) years Diabetes mean duration: 3.80 (SD=3.82) years Previous treatment: OADs
Ostenson 2014 <i>Austria, Denmark, Finland, Norway, Sweden, Switzer-land, the Netherlands</i>	11 440 respondent- weeks N=3827 (N=812 with T2DM on long-acting insulin only; N=942 with T2DM on short- and long-acting insulin) Retrospective	Basal long-acting insulin analogue  Basal bolus with basal long-acting insulin analogue	Adults, mean age in T2DM group: 60.3 (SD=10.7) years Diabetes mean duration in T2DM group: N=41 (<2 years); N=317 (2-5 years); N=394 (5-9 years); N=546 (10-14 years); N=806 (15+ years) Previous treatment: insulin
Panelo 2013 <i>Philippines</i>	6 months N=2370 Prospective	Sulfonylurea	Adults, mean age: 54.32 (SD=11.56) years Diabetes mean duration: 5.16 (SD=4.72) years Previous treatment: oral drug therapy
Pirags 2012 <i>China, Croatia, Czech Republic, Egypt, Estonia, Latvia, Poland, Romania, , Slovak Republic, Turkey</i>	12 months N=1139 Prospective	Pre-mix insulin analogue	Adults, mean age: 57.9 (10.1) years Diabetes mean duration: 9.2 (5.9) years
PREDICTIVE, Dornhorst 2008 b <i>Austria, Czech Republic, Denmark, Finland, Germany, Ireland, Israel, the Netherlands, Sweden, Turkey, the UK</i>	4-week retrospectively N=293 (N=175 on BOT with NPH and N=118 on BOT with long-acting insulin analogue) Only results of retrospective assessment are included in the SR	BOT with long- acting insulin analogue BOT with NPH	PREDICTIVE – patients who were previously treated with BOT Adult, mean (SD) age: 60.9 (10.9) years and 63.5 (11.4), NPH and glargine group respectively Diabetes mean (SD) duration: 11.6 (7.0) years and 9.9 (6.5), NPH and glargine group respectively
PREDICTIVE, Meneghini 2009 <i>Denmark, Finland, Sweden, Austria, Germany, The Czech Republic, Israel, Turkey, the Netherlands, the United Kingdom, Ireland</i>	12 weeks N=1832 Prospective	BOT with long- acting insulin analogue	PREDICTIVE – sub-analysis of cohort of insulin-naïve patients Mean (SD) age: 60.8 (10.9) years Mean (SD) diabetes duration: 8.0 (5.9) years

PREDICTIVE, Sreenan 2008	12 weeks N=3637 (N=2137 with type 2 diabetes) Prospective with 4-week retrospective assessment	Basal-bolus with long-acting insulin analogue Basal-bolus with NPH	PREDICTIVE – patients who were previously treated with NPH + bolus <sup>b</sup> Mean (SD) age: 60.5 (10.2) years <sup>b</sup> Mean (SD) diabetes duration: 12.7 (7.3) years
PRESENT, Gao 2009 <i>China</i>	12 week N=11 662 Prospective	Pre-mix insulin analogue	PRESENT – total China cohort Mean (SD) age: 50.0 (11.2), 54.6 (10.9), 55.7 (11.7), 57.8 (10.9) years, patients who were drug-naïve, on OADs only, on insulin only and treated with insulin +OADs, respectively Mean (SD) diabetes duration: 2.9 (3.7), 5.5 (4.2), 6.4 (4.9), 7.3 (4.9) patients split by prestudy therapy: drug-naïve, OAD, insulin, insulin+OAD, respectively
PRESENT, Jang 2008 <i>India, Iraq, Jordan, Kuwait, Lebanon, Qatar, Romania, Russia, Saudi Arabia, South Africa, South, Korea, Turkey, the United Arab Emirates, China, Sri Lanka</i>	12-week N=3762 (N=3414 on BOT with human insulin and N=348 on BOT with long-acting insulin analogue) Retrospective assessment	Basal long-acting insulin analogue ±OADs Basal NPH ±OADs	PRESENT - patients who were previously treated with basal insulin ±OADs Mean (SD) age: 56.9 (12.0), 56.8 (12.2) years, patients treated previously with analogue basal insulin and human basal insulin, respectively Mean (SD) diabetes duration: 9.9 (7.2), 10.9 (7.0) years, patients treated previously with analogue basal insulin and human basal insulin, respectively
PRESENT, Khutsoane 2008 <i>India, Iraq, Jordan, Kuwait, Lebanon, Qatar, Romania, Russia, Saudi Arabia, South Africa, South, Korea, Turkey, the United Arab Emirates</i>	26 weeks N=21 977 Prospective	Pre-mix insulin analogue	PRESENT – total study cohort Mean (SD) age: 55.3 (12.2) years Mean (SD) diabetes duration: 9.7 (6.8) years

PRESENT, Shestakova 2007 <i>India, Iraq, Jordan, Kuwait, Lebanon, Qatar, Romania, Russia, Saudi Arabia, South Africa, South, Korea, Turkey, the United Arab Emirates</i>	12-week N=3985 Retrospective assessment	Pre-mix human insulin	PRESENT - patients who were previously treated with pre-mix human insulin Mean (SD) age: 55.67 (12.61) years Diabetes duration, mean (SD): 11.10 (6.88) years
Progens-first step, Strojek 2008 <i>Poland</i>	2 periods each of 13-week duration N=1384 Prospective, multicentre observational, conducted in the outpatient setting	Biphasic human insulin (Gensulin)	Adult, mean age: 61 (9.1) years Diabetes duration, mean: 63 (54) months Patients with secondary failure to OADs
RESOLUTE <i>Czech Republic, Netherlands, Poland, Russia, Argentina</i>	6 months, N=564 Prospective	BOT with long-acting insulin analogue	Adults, mean age: 61.9 (SD=10.1) years Diabetes mean duration: 9.2 (SD=5.9) years Previous treatment: insulin detemir $\pm$ OADs
SAFIR, Zick 2007 <i>Germany</i>	8 weeks N=479 Multicentre, open-label, single-arm	Basal-bolus with long acting insulin-analogue $\pm$ OADs	Adult, mean age: 59.2 (8.2) years Diabetes duration, mean 12.7 (7.4) years Prestudy therapy: NPH with mealtime insulin for at least 3 months
SOLVE, Damci 2014 <i>Turkey</i>	24 weeks N=2886 (N=491 in IGLar group) Prospective	BOT long-acting insulin analogue	Adults, mean age in IGLar group: 56.6 (SD=10.3) years Diabetes mean duration in IGLar group: 8.6 (SD=5.4) years Previous treatment: oral anti-diabetic drugs
SOLVE, Khunti 2012 <i>Canada, China, Germany, Israel, Italy, Poland, Portugal, Spain, Turkey, UK</i>	24 weeks N=17 374 Prospective	BOT long-acting analogue	Adults, mean age: 62 (12) years Diabetes mean duration: 10 (7) years
Sudhakaran 2010 <i>India</i>	24 weeks N=124 (N=23 on BOT with NPH and N=54 on BOT with long-acting insulin analogue) Retrospective	Basal long-acting insulin analogue $\pm$ OADs Basal NPH $\pm$ OADs	Adult, mean age of insulin glargine group and NPH insulin group, respectively: 54.6 (11.1) and 53.8 (8.1) years Diabetes duration, mean of insulin glargine group and NPH insulin group, respectively: 12.9 (3.9) and 10.2 (4.6) years

Sudhakaran 2011 <i>India</i>	24 weeks N=5560 (N=2743 on BOT with long-acting insulin analogue) Retrospective	BOT with long-acting insulin analogue	Adult, mean age in insulin glargine group: 54.2 (9.2) years Diabetes duration, mean in insulin glargine group: 13.2 (6.7) years
Suzuki 2012 <i>Japan</i>	1 year N=400 Prospective	Basal bolus with long-acting insulin analogue	Adult, mean age: 65.6 (15.2) years Previous therapy: NPH insulin and regular or rapidly acting bolus insulin for more than three months
Temizel 2010 <i>Turkey</i>	1 year N=140 (N=71 on pre-mix insulin analogue and N=69 on pre-mix human insulin) Retrospective	Pre-mix insulin analogue Pre-mix human insulin	Adult, mean age: 60.42 (10.86) and 60.29 (9.04) years, human analogue group and regular insulin, respectively Diabetes duration at insulin start, mean: 9.82 (7.14) and 9.75 (5.62) years, human analogue group and regular insulin, respectively
Tentolouris 2013, <i>Greece</i>	6-12 months N=301 (N=142 in IGlar group; N=159 in BHI group) Retrospective	Basal long-acting insulin analogue $\pm$ OADs  Pre-mix human $\pm$ OADs	Adults, mean age in IGlar and BHI group, respectively: 63.2 (SD=10.1) years and 66.7 (SD=9.6) years Diabetes mean duration: 13.5 (SD=7.8) years and 16.0 (SD=8.6) years Previous treatment: biphasic human insulin twice daily in combination with OAD



The 1-2-3 study, Garber 2006 <i>USA</i>	16 weeks N=193 Open-label, observational study	Pre-mix insulin analogue	Adult, mean age of once-daily Phase 1 group, twice-daily Phase 2 group and thrice- daily Phase 3 group, respectively: 56.7 (11.5), 58.0 (11.2) and 57.7 (10.2) Diabetes mean duration of once-daily Phase 1 group, twice-daily Phase 2 group and thrice-daily Phase 3 group, respectively: 11.1 (7.1), 12.0 (7.3) and 12.1 (7.8) Previous treatment: treatment with two or more OADs or treatment with one OAD and a basal insulin (insulin glargine or NPH insulin, no more than 60 U/day)
UK Hypoglycaemia Study Group <i>UK</i>	Mean 0.73 year N=383 (N=108 received SU) Prospective	Sulfonylurea	Adult, mean age: 60.8 (9.3) years Diabetes duration, mean: 6.0 (3.6-9.7) years
Vexiau 2008 <i>France</i>	6 months N=400 Observational, cross- sectional, multi-centre study	Sulfonylurea	Adult, mean age: 62.1 (10.7) years Patients treated with SU and metformin for at least 6 months, insulin-naïve
Yang 2012 <i>China</i>	16 weeks N=313 Multicentre, single-arm, open-label study	BOT with long- acting insulin analogue	Adult, mean age: 56.97 (8.31) years Diabetes mean duration: 7.46 (2.56) years Previous treatment: pre-mix insulin plus OADs
Zjačić-Rotkvić 2012 <i>Croatia</i>	26 weeks N=220 Prospective, open-label, single-arm, multicentre, postmarketing	Basal bolus with long-acting insulin analogue	Adult, mean age: 62.2 (9.2) years Diabetes duration: 13.9 (7.6) years Previous therapy: inadequate glycaemic control with pre-mix insulin
<sup>a</sup> Only groups included in the review are described unless data were provided only for a total study cohort. Means are presented with SD (if available).			