APPENDIX 1: SEARCH STRATEGY

1 Prediabetic State/ (23277)
2 impaired glucose tolerance/ (19287)
3 pre-diabetes.mp. (2246)
4 prediabetes.mp. (4958)
5 prediabetic state.mp. (4559)
6 pre-diabetic state.mp. (240)
7 impaired glucose tolerance.mp. (32249)
8 impaired fasting glucose.mp. (6549)
9 potential diabetes.mp. (198)
10 pre-diabetic stage.mp. (68)
11 latent diabetes.mp. (652)
12 prediabetic stage.mp. (202)
13 Diabetes, Gestational/ (24323)
14 pregnancy diabetes mellitus/ or maternal diabetes mellitus/ (20845)
15 gestational diabetes.mp. (18831)
16 or/1-15 (69857)
17 (child$ or infant$ or infancy or adolescen$ or teenage$).ti. (1750186)
18 16 not 17 (65891)
19 *Diabetes, Gestational/ge (191)
20 (genetic$ or gene$).ti. (1830637)
21 *Prediabetic State/ge (76)
22 or/19-21 (1830786)
23 18 not 22 (63522)
24 Metformin/ (43628)
25 Metformin.mp. (47524)
26 Life Style/ (120180)
27 "lifestyle and related phenomena"/ or lifestyle/ or lifestyle modification/ (139345)
28 (lifestyle or life style).mp. (208535)
29 exp Exercise/ (346028)
30 (exercise$ or physical fitness).mp. (623155)

31 exp Sports/ (239490)
32 sport$1.mp. (157693)
33 exp Diet/ (421786)
34 (diet or eating habit$).mp. (816776)
35 dh.fs. (40922)
36 or/24-35 (1821241)
37 23 and 36 (19188)
38 *Metformin/ or *Life Style/ or (*"lifestyle and related phenomena"/ or *lifestyle/ or *lifestyle modification/) or exp *Exercise/ or exp *Sports/ or exp *Diet/ (495981)
39 (Metformin or (lifestyle or life style) or (exercise$ or physical fitness) or sport$1 or (diet or eating habit$)).ti. (349954)
40 38 or 39 (653819)
41 37 and 40 (4154)
42 exp treatment outcome/ (1701813)
43 (effective$ or reduce$ or delay$).mp. (6425993)
44 (reduction or outcome$).mp. (5062163)
45 (success$ or fail$ or prevent$).mp. (5784522)
46 or/42-45 (13445211)
47 41 and 46 (2863)
48 *Prediabetic State/ or *impaired glucose tolerance/ or *Diabetes, Gestational/ or (*pregnancy diabetes mellitus/ or *maternal diabetes mellitus/) (27672)
49 (pre-diabetes or prediabetes or prediabetic state or pre-diabetic state or impaired glucose tolerance or impaired fasting glucose or potential diabetes or pre-diabetic stage or latent diabetes or prediabetic stage or gestational diabetes).ti. (18273)
50 48 or 49 (32306)
51 47 and 50 (1308)
52 remove duplicates from 51 (1008)
53 from 52 keep 1-2 (2)
54 52 not 53 (1006)

APPENDIX 2: SUMMARY OF INCLUDED STUDIES

OGTT = oral glucose tolerance test, FPG= fasting plamsa glucose, DPP = diabetes prevention programme, DPS=diabetes prevention study, IFG=impaired fasting gluose, IGT=impaired glucose tolerance											
First author	**Year of publication**	**Country**	**Type of study**	**Population size**	**Target Group**	**Lifestyle/ Metformin**	**Duration of intervention**	**Duration of intervention + follow up analysis**	**ICER (health system)**	**ICER (society)**	**Measure of effectiveness: QALY/DALY/LYG**
STUDIES BASED ON US DPP, DPPOS OR MODIFIED DPP											
Herman	**2005**	US	Clinical trial (Diabetes Prevention Program) + Lifetime simulation (Markov model)	3234 in clinical trial	IGT +IFG >25 years BMI>24kg/m2	a. Lifestyle	2.8 years	Lifetime simulation	$1,124 per QALY	NA	QALY
						b. Metformin	2.8 years	Lifetime simulation	$31,286 per QALY	NA	QALY
Eddy	**2005**	US	Simulation model (Archimedes)	10,000 people in Kaiser Permenente	IGT + IFG BMI>24kg/m2	a. DPP lifestyle program	2.8 years	30 years	$143,000/QALY	$62,600	QALY
						b. DPP metformin	2.8 years	30 years	$35,400/QALY	$35,523	QALY

DPPRG	**2012**	US	10-year, within-trial, intention-to-treat analysis	DPP: 3,234 DPPOS: 2,766	IGT + IFG >25 years BMI>24kg/m2	a. Lifestyle	DPP: 3.2 years DPP/DPPOS bridge: 1 year DPPOS maintenance: 6 years	10 years	$10,037/QALY ($6,651 undiscounted)	$14,365/QALY (£11,274 undiscounted)	QALY
						b. Metformin			Cost saving	Cost saving	QALY
Ackermann	**2006**	US	Markov model	3,234	IGT, 50 years old	a. DPP lifestyle intervention: participants aged 50 years	Until participant gets DM or dies	Lifetime simulation	$1288/QALY		QALY
						b. DPP lifestyle intervention: participants aged 65 years		Lifetime simulation	$1575/QALY		QALY
Palmer	**2004**	Australia, France, Germany, Switzerland and the United Kingdon	Markov model simulation	Cohort based on US DPP (average age 50.6 yrs, mean BMI 34.0 kg/m2, 32.2% men)	IGT Mean age: 50.6 years 32.2% men Mean BMI: 34kg/m2	a. DPP lifestyle intervention	3 years	Lifetime simulation	Euro 6381/LYG in the UK Cost saving in Australia, Switzerland, France and Germany		LYG
						b. Metformin	3 years	Lifetime simulation	Euro 5400/LYG in the UK Cost saving in Australia, Switzerland, France and Germany		LYG

Palmer	**2012**	Australia	Markov model (TreeAge Pro)	Cohort based on US DPP (average age 50.6 yrs, mean BMI 34.0 kg/m2, 32.2% men)	IGT +/- IFG	a. US DPP lifestyle intervention, then DPP/DPPOS bridge and DPPOS	DPP: 3.2 years DPP/DPPOS bridge: 1 year DPPOS maintenance: 6 years	Lifetime simulation	Cost saving		QALY
						b. Metformin, then DPP/DPPOS bridge and DPPOS		Lifetime simulation	AU $10,142		QALY
Png	**2014**	Singapore	Decision tree in Excel	Cohort based on US DPP	IGT +/- IFG	a. US DPP lifestyle intervention	3 years	3 years	$17,184/QALY	$36,663/QALY	QALY
						b. Metformin	3 years	3 years	$21,065/QALY	$6,367/QALY	QALY
STUDIES BASED ON FINNISH DPS OR MODIFIED DPS											
Lindgren	**2007**	Sweden	Markov model (evaluated using Monte Carlo simulation) based on Finnish Diabetes Prevention Study	397	60-year olds in the County of Stockholm with BMI>26mg/m2 and IFG	Lifestyle Program used in the Finnish Diabetes Prevention Study	6 years	Lifetime simulation		Cost saving (Euro -9265 per QALY Euro -14,692 per QALY undiscounted)	QALY

Caro	**2004**	Canada	Markov model	NA	IGT	a. Intensive lifestyle intervention (based on Finnish DPS)	5 years	10 years	$749/LYG		QALY
						b. Metformin	5 years	10 years	Cost saving (-$7136/LYG)		QALY
						c. Acarbose	5 years	10 years	Cost saving (-$4485/LYG)		QALY
STUDIES BASED ON INDIAN DPP											
Ramachandran	**2007**	India	Within-trial analysis	531	IGT (2 positive OGTTs in 35-55 year olds)	a. Lifestyle modification	3 years	3 years			Number needed to treat to prevent 1 case of T2DM
						b. Metformin	3 years	3 years			
						c. Lifestyle modification and metformin	3 years	3 years			
STUDIES INCLUDING SCREENING + INTERVENTION BASED ON US DPP OR DPPOS											
Hoerger	**2007**	US	Markov simulation model	Population cohort based on 1999-2000 NHANES	IFG and/or IGT US adults aged 45-74 with BMI>=25kg/m2.	1. Screening and DPP lifestyle for IFG and FPG	Intervention until T2DM develops	Lifetime simulation	$8,181/QALY	$16,345/QALY	QALY
						2. Screening and DPP for IFG or IGT or IFG and IGT	Intervention until T2DM develops	Lifetime simulation	$9,511/QALY	$18,777/QALY	QALY
Icks	**2007**	Germany	Decision analytic model	72,435	IGT +/- IFG Aged 60-74 years	1. Lifestyle program as in USDPP	3 years	3 years	£3,127/case of T2DM avoided	£18,112/case of T2DM avoided	Number of cases of

					BMI >=24kg/m2	2. Metformin	3 years	3 years	£12,731/case of T2DM avoided	£21,313/case of T2DM avoided	diabetes avoided
Schaufler	**2010**	Germany	Markov model (TreeAge Pro)	1 million individuals modelled	IGT	1. Lifestyle program as in USDPP	Not specified	Lifetime simulation	Euro 562/QALY		QALY
						2. Metformin	Not specified	Lifetime simulation	Euro 325/QALY		QALY
Zhou	**2012**	US	Markov model	Eligible population in the US	18-64 yrs, CDC diabetes risk test if BMI>=25kg/m2, if positive FPG or HbA1c	Community based lifestyle intervention (PLAN4WARD)	3 years	25 years	Cost saving		QALY
Mortaz	**2012**	Canada	Markov model (in TreeAge)	NA	IFG	Screening with FPG every 3 years followed by US DPP based lifestyle intervention or metformin	Not specfified	10 year analysis	CA$16,800/QALY		QALY
Herman	**2013**	US	10-year, within-trial, inention-to-treat analysis: DPP and DPPOS	3,234 participants in DPP	IGT +/- IFG BMI>24mg/kg Screen 45-74 year olds RCBG,	a. USDPP lifestyle intervention (individual sessions) and USDPPOS	DPP: 3.2 years DPP/DPP OS bridge: 1 year DPPOS	10 years	$19,988/QALY (cost-saving if undiscounted)	$3,235/QALY (undisounted)	QALY

					follow up OGTT	b. USDPP lifestyle intervention (in groups) and USDPPOS	maintenance: 6 years		$9,688/QALY (cost saving if undiscounted)	Cost saving (undiscounted)	QALY
						b. USDPPOS Metformin			$20,183 (cost saving if undiscounted)	Cost saving (undiscounted)	QALY
Dall	**2015**	US	Markov microsimulation model	Adults in the US	Elevated HbA1c (5.7-6.4%)	USDPPOS	10 years	10 years		Cost saving	QALY
STUDIES INCLUDING SCREENING + DA QING INTERVENTION											
Liu	**2013**	China	Markov model	NA	IFG and IGT	a. Screening with diet intervention	6 years	40 years		Initiation age: 25yrs: -- $2,044/QALY 40 yrs: -$1,527/QALY 60 yrs: -3,602/QALY	QALY
						b. Screening with exercise intervention	6 years	40 years		Initiaton age: 25: -$2,063/QALY 40: -$1,540/QALY 60: -$3,713/QALY	QALY

						c. Screening with duo intervention	6 years	40 years		Initiation age 25 yrs: -$2,061/QALY 40 yrs: -$1,507/QALY 60 yrs: -$3,713/QALY	QALY
						d. Screening alone	6 years	40 years		Initiation age 25 yrs: -$471/QALY 40 yrs: -$331/QALY 60yrs: -$1,195/QALY	QALY
STUDIES INCLUDING SCREENING + FINNISH DPS											
Bertram	**2010**	Australia	Discrete-time microsimulation model	8,000 individual life histories simulated	IGT and IFG (Opportunistic screening of Australians over the age of 45 years with risk factors for T2DM during GP visit for another reason using FPG followed by confirm-atory OGTT)	a Diet plus exercise	As long as a partici-pant remains pre-diabetic	Until age 100 or death	AU$23,000/DALY		DALY
						b. Exercise		Until age 100 or death	AU$30,000/DALY		DALY
						c. Diet		Until age 100 or death	AU$38,000/DALY		DALY
						d. Acarbose		Until age 100 or death	AU$37,000/DALY		DALY
						e. Metformin		Until age 100 or death	AU$22,000/DALY		DALY
						f. Orlistat		Until age 100 or death	AU$100,000/DALY		DALY

						g. Metformin plus diet and exercise		Until age 100 or death	AU$81,000/DALY		DALY
STUDIES INCLUDING SCREENING + OTHER INTERVENTION >2 YEARS DURATION											
Neumann	**2011**	Germany	Trial based cost utility analysis	NA	IFG and T2DM (FPG screening: 45-70 year-olds with elements of metabolic syndrome or GDM)	Group lifestyle program	5 years	Lifetime simulation		Age 30: Men (-Eur25,164), Women (Eur -31,407) Age 50: Men (Eur -15,108), Women (Eur -21,215) Age 70: Men (Eur 27,546), Women (Eur 19,433)	QALY
Sagarra	**2013**	Spain	Trial-based cost utility analysis	552 participants in trial 230 in group-based intervention 103 in individual intervention	IGT and/or IFG in people aged 45-75 identified with FINDRISC >14 or requesting OGTT regardless of FINDRISC score Av age: 62 yrs, Av BMI: 31kg/m2	1. Group intensive lifestyle program 2. Individual intensive lifestyle programme	5 years: 1 year: Screening 4 years: Intervention	Median: 4.2 years No analysis post-intervention	Euro 3243/QALY		QALY
STUDIES INCLUDING SCREENING + INTERVENTION OF UNSPECIFIED DURATION											

Gilles	**2008**	UK	Decision tree and Markov model	NA	IGT (One-off screening with FPG and OGTT for population aged 45 yrs with at least 1 risk factor for T2DM)	Screening for T2DM only	Not stated	50 year simulation	Cost per QALY: £14150 (£8681/QALY undiscounted) Cost per LYG: £23710 (£11460/LYG undiscounted)		QALY and LYG
						Screening for T2DM and IGT and treatment with lifestyle program	Not stated	50 year simulation	Cost per QALY: £6242 (£2863/QALY undiscounted) Cost per LYG: £10900 (£4179 undiscounted)		QALY and LYG
						Screening for T2DM and IGT and treatment with metformin	Not stated	50 year simulation	Cost per QALY: £7023 (£3429/QALY undiscounted) Cost per LYG: £11690 (£4786/LYG undiscounted)		QALY and LYG
Colagiuri	**2008**	Australia	Simulation using the Diabetes Cost Benefit model, including cost benefit analysis and cost utility analysis ($/DALY)	Whole Australian population	Screening for undiagnosed T2DM and prediabetes (IGT and IFG) in Australians aged 55-74 years and those who were 45-54 years with a	Screening (risk factor assessment), FPG for those at high risk, OGTT for those with FPG 5.9-6.6 mmol/l	10 years	10 year simulation		$53,955/DALY in 45-54 year olds $48,386/DALY in 55-74 year olds $49,713/DALY 45-74 year olds	DALY

					BMI>=30, family history of T2DM and/or hypertension						
STUDIES INCLUDING SCREENING +INTERVENTION <2 YEARS DURATION											
Irvine	**2011**	UK	Trial-based cost-utility analysis	177 participants in trial, 118 allocated to intervention	IFG and T2DM (FPG screening of 45-70 years olds with elements of metabolic syndrome)	UEA-IFG lifestyle program	Control: 6.69 months Intervention: 7.28 months	1 year	£67,163/QALY		QALY
STUDIES INCLUDING NO SCREENING AND OTHER INTERVENTIONS											
Smith	**2010**	US	Markov model (TreeAgePro) based on findings of non-randomised prospective trial	Not stated	55 year old men with BMI>=25kg/m2 and at least 3 signs of metabolic syndrome	Modified DPP designed for distinct populations	12-14 weeks	3 years		$3,420/QALY	QALY

Feldman	**2013**	Sweden	Markov microsimulation model	142	People in primary care with evidence of metabolic syndrome	Primary care - based lifestyle program (Kalmar Metabolic Syndrome Program)	1 year	Simulation until 85 years of age	Men: Low risk: Euro 11,213/QALY Medium risk: Euro 5,052/QALY High risk: Euro 3,305/QALY Women: Low risk: Euro 10,698/QALY Medium risk: Euro 7,379/QALY High risk: Euro 18,739/QALY	Men: Low risk: Euro 7,276/QALY Medium risk: Cost saving High risk: Cost saving Women: Low risk: Euro 7,337/QALY Medium risk: Euro 3,608/QALY High risk: Euro 18,191/QALY	QALY
STUDIES INCLUDING NO SCREENING + UNSPECIFIED LIFESTYLE INTERVENTION											
Jacobs Van Der Brugge n	**2007**	Netherlands	Markov model	Dutch population 2004 (16.3 million) for community intervention	Whole adult population for community intervention	Community intervention	5 years community intervention	70 years	Community intervention: Euro 3100-3900/QALY	-	QALY
				200,000	Obese adults aged 30-70 years for healthcare intervention	Healthcare intervention: Lifestyle program	3 years healthcare intervention	70 years	Healthcare intervention: Euro 3900-5500/QALY	-	QALY

APPENDIX 3: COST OF LIFESTYLE PROGRAMS IN INCLUDED STUDIES

US DIABETES PREVENTION PROGRAM - COSTS OF LIFESTYLE PROGRAM (37)													
Activity	Staff type	YEAR 1				YEAR 2				YEAR 3			
		Volume of contact	Time per contact (hrs)	Staff cost per hour	Total cost p.a.	Volume of contacts	Time per contact (hrs)	Staff cost per hour	Total cost p.a.	Volume of contacts	Time per contact (hrs)	Staff cost per hour	Total cost p.a.
Baseline history and physical examination	GP	1	1	£ 162.00	£ 162.00				£ -				£ -
Annual nurse review and blood tests	District nurse					1	0.33	0.3	£ 11.67	1	0.33	0.3	£ 11.67
Core curriculum	Care manager (Band 5)	16	1	£ 45.00	£ 720.00				£ -				£ -
Supervised activity session	Care manager (Band 5)	2.562	1	£ 45.00	£ 115.29	2.562	1	£ 45.00	£ 115.29	2.562	1	£ 45.00	£ 115.29
	Trainer (Band 5)	1.708	1	£ 45.00	£ 76.86	1.708	1	£ 45.00	£ 76.86	1.708	1	£ 45.00	£ 76.86
Lifestyle group sessions	Care manager (Band 5)	0.36	1.25	£ 45.00	£ 20.25	0.72	1.25	£ 45.00	£ 40.50	0.72	1.25	£ 45.00	£ 40.50
In-person visits	Care manager (Band 5)	7.65	0.58	£ 45.00	£ 199.67	12.33	0.58	£ 45.00	£ 321.81	12.33	0.58	£ 45.00	£ 321.81
Phonecalls	Care manager (Band 5)	2.32	0.25	£ 45.00	£ 26.10	2.66	0.25	£ 45.00	£ 29.93	2.66	0.25	£ 45.00	£ 29.93
Reminder phone calls	Secretary (Band 4)	29.41	0.08	£ 36.25	£ 85.29	17.45	0.08	£ 36.25	£ 50.61	17.45	0.08	£ 36.25	£ 50.61
Materials					£ 9.61				£ -				£ -
Tool box					£ 102.00				£ 105.00				
Intervention cost p.a.					**£ 1,517.06**				**£ 751.66**				**£ 646.66**

Total intervention cost													**£ 2,915.39**
INDIAN DIABETES PREVENTION PROGRAM - COSTS OF LIFESTYLE PROGRAM (64)													
		YEAR 1				YEAR 2				YEAR 3			
Activity	Staff type	Volume of contacts	Time per contact (hrs)	Staff cost per hour	Total cost p.a.	Volume of contacts	Time per contact (hrs)	Staff cost per hour	Total cost p.a.	Volume of contacts	Time per contact (hrs)	Staff cost per hour	Total cost p.a.
Visits	GP	4	0.5	£ 162.00	£ 324.00	4	0.5	162.0	£ 324.00	4	0.5	162.0	£ 324.00
	Social worker	4	0.75	£ 62.86	£ 188.57	4	0.75	£ 62.86	£ 188.57	4	0.75	£ 62.86	£ 188.57
	Dietician	4	0.75	£ 62.86	£ 188.57	4	0.75	£ 62.86	£ 188.57	4	0.75	£ 62.86	£ 188.57
	Helper	4	0.5	£ 36.25	£ 72.50	4	0.5	£ 36.25	£ 72.50	4	0.5	£ 36.25	£ 72.50
	Technician	2	0.16	£ 36.25	£ 11.60	2	0.16	£ 36.25	£ 11.60	2	0.16	£ 36.25	£ 11.60
Phone calls – inbound	Social worker	5.4	0.25	£ 62.86	£ 84.86	2.25	0.25	£ 62.86	£ 35.36	2.2	0.25	£ 62.86	£ 34.57
	Dietician	4.8	0.25	£ 62.86	£ 75.43	1.8	0.25	£ 62.86	£ 28.29	1.6	0.25	£ 62.86	£ 25.14
Phone calls – outbound	Social worker	8	0.41	£ 62.86	£ 206.17	8	0.41	£ 62.86	£ 206.17	10	0.41	£ 62.86	£ 257.71
	Dietician	8	0.41	£ 62.86	£ 206.17	8	0.41	£ 62.86	£ 206.17	10	0.41	£ 62.86	£ 257.71
Reminder calls	Secretary	12	0.05	£ 36.25	£ 21.75	12	0.05	£ -	£ -	12	0.05	£ -	£ -
Intervention cost p.a.					**£ 1,380**				**£ 1,261**				**£ 1,360**
Total intervention cost													**£ 4,001**

APPENDIX 4: BENEFITS OF PREVENTION PROGRAMS

Study	Type of intervention	DALYs averted	Increase in QALYs	Method of calculating QALYs	Years free of diabetes	Increased life years gained (years)	Number needed to treat to prevent 1 case of diabetes
Herman, 2005 - DPP	a. Lifestyle		0.57	Self-administered Quality of Wellbeing Index	11	0.5	
	b. Metformin		0.13		3	0.2	
Eddy, 2005	a. DPP lifestyle (in those with IGT and IFG)		0.159 (0.276 undiscounted)	Quality of Wellbeing Index		0.288	
	b. DPP metformin		NR				
Diabetes Prevention Programme (DPP) Research Group, 2012	a. Lifestyle		0.12 (0.14 undiscounted)	Self-administered Quality of Wellbeing Index			
	b. Metformin		0.02 (0.02 undiscounted)				
Ackermann, 2006	DPP lifestyle intervention at either age 50 of 65yrs of target population		0.59 (lifestyle intervention provided to 50 year olds) 0.27 (lifestyle intervention provided to 65 year olds)	Self-administered Quality of Wellbeing Index			
Palmer, 2004	a. Intensive lifestyle change (US DPP)				1.77-1.82	0.06-0.16 (0.21-0.23 undiscounted)	
	b. Metformin				0.86-0.89	0.03-0.07 (0.10-0.11 undiscounted)	
Palmer, 2012	a. Intensive lifestyle change (US DPP)		0.39	NA	5.71	0.69	
	b. Metformin		0.12	NA	2.47	0.3	

Png, 2014	1. Lifestyle (US DPP)		0.05	Self-administered Quality of Wellbeing Index (used in US DPP)			
	2. Metformin		0.01				
Lindgren, 2007	Lifestyle intervention (FDPS)		0.2	EQ-5D		0.18	
Caro, 2004	a. Lifestyle program (based on FDPS)					0.31	
	b. Metformin					0.14	
	c. Acarbose					0.2	
Ramachandran, 2007	1. Lifestyle management						6.4
	2. Metformin						6.9
	3. Lifestyle management and metformin						6.5
Hoerger, 2007	1. Screening and DPP lifestyle program for IFG and IGT		0.040 per screened subject 0.099 per subject with prediabetes			0.043 (undiscounted) per screened subject 0.106 (undiscounted) per subject with prediabetes	
	2. Screening and DPP for IFG or IGT or IFG and IGT		0.118 per screened subject 0.290 per subject with prediabetes			0.122 (undiscounted) per screened subject 0.300 (undiscounted) per subject with prediabetes	
Icks, 2007	1. Screening and DPP lifestyle program						4.3

	2. Screening and metformin						27.9
Schaufler, 2010	1. Screening and US DPP lifestyle program		2.91 (undiscounted)	Self-Administered Quality of Wellbeing Index			
	2. Screening and metformin		2.83 (undiscounted)	Self-Administered Quality of Wellbeing Index			
Mortaz, 2012	3-yearly screening with FPG and USDPP lifestyle intervention or metformin		0.306	EQ-5D			
Liu, 2012	a. Screening with diet intervention		Initiation age 25 yrs: 3.33 Initiation age 40 yrs: 2.59 Initiation age 60 yrs: 0.56			Initiation age 25 yrs: 1.7 Initiation age 40 yrs: 0.5 Initiation age 60 yrs: 0.1	
	b. Screening with exercise intervention		Initiation age 25 yrs: 3.33 Initiation age 40 yrs: 2.58 Initiation age 60 yrs: 0.56			Initiation age 25 yrs: 1.7 Initiation age 40 yrs: 0.5 Initiation age 60 yrs: 0.1	
	c. Screening with diet and lifestyle intervention		Initiation age 25 yrs: 3.33 Initiation age 40 yrs: 2.59 Initiation age 60 yrs: 0.56			Initiation age 25 yrs: 1.7 Initiation age 40 yrs: 0.5 Initiation age 60 yrs: 0.1	
	d. Screening alone		Initiation age 25 yrs: 2.40 Initiation age 40 yrs: 1.37 Initiation age 60 yrs: 0.33			Initiation age 25 yrs: 1.2 Initiation age 40 yrs: 0.1 Initiation age 60 yrs: 0	

Gilles, 2008	1. Screening for T2DM only		0.03 (-0.02-0.09) Undiscounted: 0.07 (-0.03-0.18)	EQ-5D		0.02 (-0.01 - 0.05) Undiscounted: 0.06 (0.02-0.12)	
	2. Screening for T2DM and IGT and lifestyle intervention		0.09 (0.03-0.17) Undiscounted: 0.22 (0.08-0.36)		0.17 (0.11-0.23) Undiscounted: 0.33 (0.21-0.43)	0.05 (0.03-0.08) Undiscounted: 0.15 (0.08-0.22)	
	3. Screening for T2DM, IGT and treat with metformin		0.07 (0.01-0.15) Undiscounted: 0.17 (0.03-0.32)		0.11 (0.06-0.19) Undiscounted: 0.20 (0.10-0.37)	0.05 (0.02-0.07) Undiscounted: 0.13 (0.06-0.20)	
Colagiuri, 2008	Screening + lifestyle intervention	0.10 per person with IGT or IFG					
Bertram, 2010	a Diet plus exercise	0.05					
	b. Exercise	0.04					
	c. Diet	0.02					
	d. Acarbose	0.06					
	e. Metformin	0.04					
	f. Orlistat	0.07					
	g. Metformin plus diet and exercise	0.01					
Neumann, 2011	Group lifestyle intervention		30 years of age: Men: 0.02, Women: 0.03 50 years of age: Men: 0.03, Women: 0.02	SF-6D and EQ-5D			

			70 years of age: Men: 0.02, Women: 0.02				
Smith, 2010	Modifified DPP		0.01	Not specified			
Feldman, 2013	Primary care -based lifestyle program (Kalmar Metabolic Syndrome Program)		0.05-0.14	Not specified		0.3	
Jacobs Van der Bruggen, 2007	1. Community intervention		0.006-0.039	Not specified		0.007-0.043	1500-300
	2. Healthcare intervention		0.27-1.17	Not specified		0.32-1.35	30-7
Irvine, 2011	Lifestyle intervention (UEA-IFG)		0.003	EQ-5D			
Sagarra, 2013	Individual and group lifestyle program		0.12	15D			
Zhuo, 2012	Community based lifestyle intervention (PLAN4WARD)		0.03 per participant identified as prediabetic 0.053 per person participating in lifestyle program			0.04 per participant identified as prediabetic 0.08 per person participating in lifestyle program	14.24
Herman, 2013	1. USDPP and USDPPOS lifetsyle program		0.15	Self-administered Quality of Wellbeing Index			
	2. Metformin and USDPPOS lifestyle program		0.09				
Dall, 2015	DPPOS		0.39 using ADA screening criteria 0.41 using	EQ-5D		0.36 using ADA screening criteria	3.9 using the ADA screening criteria 4.2 using the USPSTF criteria

			USPSTF criteria			0.45 using USPSTF criteria	

APPENDIX 5: ASSESSMENT OF QUALITY, RELEVANCE AND CREDIBILITY

QUESTIONS	HELPER QUESTIONS	SPECIFIC ELEMENTS EXAMINED	Herman, 2005	Eddy, 2005	DPPRG, 2012	Ackermann, 2006	Palmer 2004
ASSESSMENT OF RELEVANCE							
1. Is the population relevant?	Are the demographics similar?	Age, ethnicity, gender	45% members of minority groups Age >25 years 68% women	Not reported	45% members of minority groups Age >25 years 68% women	50 years of age	Population based on the USDPP: Mean age 50.6 years 32.2% men Mean BMI 34kg/m2
	Are risk factors similar?	Type of pre-diabetes, BMI	IGT *and* IFG, BMI>24kg/m2	IGT and IFG, BM>24kg/m2	IGT *and* IFG, BMI>24kg/m2	IGT	IGT

	Are behaviors similar?	Compliance with intervention	72% participants took at least 80% of required metformin	Not reported	Years 1-3: 72% participants took at least 80% of required metformin Years 4+: 88% eligible participants enrolled, 40% of lifestyle, 58% of metformin and 57% of placebo participants attended at least one session	10% p.a. drop out rate modelled in sensitivity analysis	Data drawn from USDPP Additional non-participation/non-adherence not modelled
	Is the medical condition similar?		Yes	Yes	Yes	Yes	Yes
2 Are any critical interventions missing?	Does the intervention analyzed in the model match the intervention you are interested in?	Type of intervention	1. Lifetsyle intervention (duration 2.8 years, USDPP)) 2. Metformin 3. Placebo	1. Lifetsyle intervention over 2.8 years (USDPP) 2. Metformin 3. Usual care	1. Lifestyle intervention over 10 years (USDPP/DPPOS) 2. Metformin 3. Usual care	1. Lifestyle intervention 2. Usual care	1. Lifestyle intervention (based on USDPP) 2. Metformin 3. Usual care
	Have all relevant comparators been considered?		Yes	Yes	Yes	No, metformin not included	Yes

	Does the background care in the model match yours?		US healthcare system	US healthcare system	US healthcare system	US healthcare system	Australia, France, Germany, Switzerland and the United Kingdom's health systems
3 Are any relevant outcomes missing?	Are the health outcomes relevant to you considered?		Yes, QALYs	Yes, QALYs	Yes, QALYs	Yes, QALYs	Yes, LYG
	Are the economic end points relevant to you considered?		Yes, $/QALY	Yes, $/QALY	Yes, $/QALY	Yes, $/QALY	Yes, $/LYG
4. Is the context (settings and circumstances) applicable?	Is the geographic location similar?		US	US	US	US	Australia, France, Germany, Switzerland and the United Kingdom
	Is the time horizon applicable to your decision?		Yes, lifetime simulation	Yes, 30 years	Yes, 10 years	Yes, lifetime simulation	Yes, lifetime
	Is the analytic perspective appropriate to your decision problem?	Health system or societal perspective	Health system perspective	Health system and societal perspective	Health system and societal perspective	Health system perspective	Health system perspective
ASSESSMENT OF CREDIBILITY							
Validation							

Is external validation of the model sufficient to make its results credible for your decision?	Has the model been shown to accurately reproduce what was observed in the data used to create the model?		Not reported	Yes	*Not a modelling study*	Not reported	Not reported
	Has the model been shown to accurately estimate what actually happened in one or more separate studies?		Not reported	Yes		Not reported	Not reported
	Has the model been shown to accurately forecast what eventually happens in reality?		Not reported	Not reported		Not reported	Not reported
Is internal verification of the model sufficient to make its results credible for your decision?	Have the process of internal verification and its results been documented in detail?		Not reported	Yes	*Not a modelling study*	Not reported	Not reported
	Has the testing been performed systematically?		Not reported	Yes		Not reported	Not reported
	Does the testing indicate that all the equations are consistent with their data sources?		Not reported	Yes		Not reported	Not reported
	Does the testing indicate that the coding has been correctly implemented?		Not reported	Yes		Not reported	Not reported

Does the model have sufficient face validity to make its results credible for your decision?	Does the model contain all the aspects considered relevant to the decision?		Yes	Yes	*Not a modelling study*	Yes	Yes
	Are all the relevant aspects represented and linked according to the best understanding of their characteristics?		Yes	Not reported		Yes	Yes
	Have the best available data sources been used to inform the various aspects?		Yes	Not reported		Yes	Yes
	Is the time horizon sufficiently long to account for all relevant aspects of the decision problem?		Yes, lifetime simulation	Yes, 30 years		Yes - lifetime simulation	Yes, lifetime simulation
	Are the results plausible?		Yes	No		Yes	Yes
	If others have rated the face validity, did they have a stake in the results?		Rating of face validity not reported	Rating of face validity not reported in detail		Rating of face validity not reported	Rating of face validity not reported
Design							

Is the design of the model adequate for your decision problem?	Was there a clear, written statement of the decision problem, modeling objective, and scope of the model?		Yes	Yes	*Not a modelling study*	Yes	Yes
	Was there a formal process for developing the model design (e.g. influence diagram, concept map)?		Not reported - pre-existing model utilised	Not reported - pre-existing model utilised		Not reported - pre-existing model utilised	Not reported
	Is the model concept and structure consistent with, and adequate to address, the decision problem/objective and the policy context?		Yes	Yes		Yes	Yes
	Have any assumptions implied by the design of the model been described, and are they reasonable for your decision problem?		Yes	Not reported		No - assumption that relative risk reduction continues as long as lifestyle intervention continues (until participant gets T2DM or dies)	No-reversion from IGT to normoglycaemia not modelled
	Is the choice of model type appropriate?		Yes	Yes		Yes	Yes

	Were key uncertainties in model structure identified and their implications discussed?		Yes	Yes		Yes	Yes
Data							
Are the data used in populating the model suitable for your decision problem?	All things considered, do you agree with the values used for the inputs?	Duration and extent of impact of lfestyle intervention	Relative risks of T2DM from USDPP Lifetsyle intervention provided **until onset of T2DM** and assumed health and QOL benefits associated with interventions remain constant and persist until diabetes onset	Lifestyle program and metformin assumed to continue to impact T2DM incidence as long as they were provided (up to and after diagnosis with T2DM)	Relative risks of of T2DM from USDPP and USDPPOS	Lifetsyle intervention provided until onset of T2DM and that health and QOL benefits associated with interventions remain constant and persist until diabetes onset	Lifestyle intervention provided for 3 years and benefts in terms of reduction in incidence of T2DM only lasts for 3 years (ie. For duration of intervention)
		Source of cost data	USDPP	USDPP	USDPP/USDPPOS	USDPP	Costs of intervention from USDPP Other costs from published data

		Source of outcome data	USDPP	Not reported	USDPP/USDPPOS	USDPP	USDPP
		Discount rate	3% for costs and QALYs	3% costs and QALYs	3% for costs and QALYs	3% for costs and QALYs	5% for costs and LYG in Australian, German, Swiss and French analysis 1.5% for health outcomes and 6% for costs in UK analysis
Analysis							
Were the analyses performed using the model adequate to inform your decision problem?			Yes	Yes	Yes	Yes	Yes

Was there an adequate assessment of the effects of uncertainty?		Key sensitivity analyses	Sensitivity analyses: 1. Group lifestyle programme 2. Generic metformin 3. Reduced effectiveness of interventions to 20% and 50% of USDPP to reflect reduced adherence 4. Discount rates	Sensitivity analyses: 1. Intervention effect 2. Size of the health plan 3. Discount rate 4. Cost of diabetes care 5. Turnover of the health plan	No senitivity analyses as was a within-trial analysis	Sensitivity analyses: 1. Group lifestyle programme 2. Reduced effectiveness of interventions to 50% of USDPP 3. Adherence reduced by 10% each year	Sensitivity analyses: 1. Total costs +/- 10% 2. Life expectancy +/- 10% 3. Rank order stability assessment 4. Discount rates (range 0-6%) 5. Relative risk T2DM 6. Effect duration of intervention 7. Relative risk of mortality for IGT and T2DM 8. Relative costs of IGT and T2DM 9. Intervention costs (80-300% of base case)
Reporting							
Was the reporting of the model adequate to inform your decision problem?	Did the report of the analyses provide the results needed for your decision problem?		Yes	Yes	Yes	Yes	Yes
	Was adequate nontechnical documentation freely accessible to any interested reader?		Yes	Yes	Yes	Yes	Yes

	Was technical documentation, in sufficient detail to allow (potentially) for replication, made available openly or under agreements that protect intellectual property?		Yes	No	Yes	Yes	Yes
Interpretation							
Was the interpretation of results fair and balanced?			Yes	Yes	Yes	Yes	Yes
Conflict of interests							
Were there any potential conflicts of interest?			No	No	No	No	No
If there were potential conflicts of interest, were steps taken to address these?			NA	NA	NA	NA	NA

APPENDIX 4 CONTINUED:

QUESTIONS	HELPER QUESTIONS	SPECIFIC ELEMENTS EXAMINED	Palmer, 2012	Png, 2014	Lindgren, 2007	Caro, 2004	Ramachandran, 2007
ASSESSMENT OF RELEVANCE							
1. Is the population relevant?	**Are the demographics similar?**	**Age, ethnicity, gender**	**Not reported**	**Not reported**	**Age 60 years**	**Mean age: 54.5 years 50% male**	**Indian office workers aged 35-55**
	Are risk factors similar?	**Type of pre-diabetes, BMI**	**IGT or IFG, overweight or obese**	**IGT and IFG**	**IFG, BMI>25kg/m2**	**IGT**	**IGT**

	Are behaviors similar?	**Compliance with intervention**	**Compliance with metformin 68-76% Adherence with lifestyle programs: 14-58%**	**Not reported**	**No drop out was assumed Participation rate of 67.5% in circuit training sessions**	**Non-compliance not explicitly modelled**	**Compliance measured within intervention**
	Is the medical condition similar?		**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
2 Are any critical interventions missing?	**Does the intervention analyzed in the model match the intervention you are interested in?**	**Type of intervention**	**1. Lifestyle intervention (based on USDPP) 2. Metformin 3. Usual care**	**1. Lifestyle intervention (based on USDPP) 2. Metformin 3. Usual care**	**1. Lifestyle intervention (based on 6-year Finnish DPS) 2. Usual care**	**1. Lifestyle intervention (based on 6-year Finnish DPS) 2. Metformin 3. Acarbose 4. Usual care**	**1. Lifestyle intervention (3 year Indian DPP) 2. Metformin 3. Usual care**
	Have all relevant comparators been considered?		**Yes**	**Yes**	**No, metformin not considered**	**Yes**	**Yes**
	Does the background care in the model match yours?		**Australian health system**	**Singaporean health system**	**Swedish health system**	**Canadian health system**	**Indian health system**

3 Are any relevant outcomes missing?	**Are the health outcomes relevant to you considered?**		**Yes, QALYs**	**Yes, QALYs**	**Yes, QALYs**	**Yes, LYG**	**No, QALYs or DALYs not considered**
	Are the economic end points relevant to you considered?		**Yes, $/QALY**	**Yes, $/QALY**	**Yes, Euro/QALY**	**Yes, $/LYG**	**No, $/QALY or DALY not considered**
4. Is the context (settings and circumstances) applicable?	**Is the geographic location similar?**		**Australia**	**Singapore**	**Sweden**	**Canada**	**India**
	Is the time horizon applicable to your decision?		**Yes, lifetime**	**No - 3 year time horizon**	**Yes, lifetime simulation**	**Yes, 10 year time horizon**	**No, 3 year analysis**
	Is the analytic perspective appropriate to your decision problem?	**Health system or societal perspective**	**Health system perspective**	**Health system and societal perspective**	**Societal perspective**	**Health system perspective**	**Health system perspective**
ASSESSMENT OF CREDIBILITY							
Validation							
Is external validation of the model sufficient to make its results credible for your decision?	**Has the model been shown to accurately reproduce what was observed in the data used to create the model?**		Not reported	Not reported	Not reported	Not reported	*Not a modelling study*
	Has the model been shown to accurately estimate what actually happened in one or more separate studies?		Not reported	Not reported	Not reported	Not reported	

	Has the model been shown to accurately forecast what eventually happens in reality?		Not reported	Not reported	Not reported	Not reported	
Is internal verification of the model sufficient to make its results credible for your decision?	**Have the process of internal verification and its results been documented in detail?**		Yes	Not reported	Not reported	Not reported	*Not a modelling study*
	Has the testing been performed systematically?		Yes	Not reported	Not reported	Not reported	
	Does the testing indicate that all the equations are consistent with their data sources?		Not reported	Not reported	Not reported	Not reported	
	Does the testing indicate that the coding has been correctly implemented?		Not reported	Not reported	Not reported	Not reported	
Does the model have sufficient face validity to make its results credible for your decision?	**Does the model contain all the aspects considered relevant to the decision?**		Yes	Yes	Yes	Yes	*Not a modelling study*
	Are all the relevant aspects represented and linked according to the best understanding of their characteristics?		Yes	Yes	Yes	Yes	

	Have the best available data sources been used to inform the various aspects?		Yes	Yes	Yes	Yes	
	Is the time horizon sufficiently long to account for all relevant aspects of the decision problem?		Yes	No - 3 year horizon modelled	Yes	Yes, 10 years	
	Are the results plausible?		Yes	Yes	Yes	Yes	
	If others have rated the face validity, did they have a stake in the results?		Rating of face validity not reported	Rating of face validity not reported	Rating of face validity not reported	Rating of face validity not reported	
Design							
Is the design of the model adequate for your decision problem?	**Was there a clear, written statement of the decision problem, modeling objective, and scope of the model?**		Yes	Yes	Yes	Yes	Not a modelling study
	Was there a formal process for developing the model design (e.g.		Not reported	Not reported	Not reported	Not reported	

	influence diagram, concept map)?						
	Is the model concept and structure consistent with, and adequate to address, the decision problem/objective and the policy context?		Yes	Yes	Yes	Yes	
	Have any assumptions implied by the design of the model been described, and are they reasonable for your decision problem?		Yes	Yes	No - Reversion from IFG to NGT not modelled	Yes	
	Is the choice of model type appropriate?		Yes	Yes	Yes	Yes	

	Were key uncertainties in model structure identified and their implications discussed?		Yes	Yes	Yes	Yes	
Data							
Are the data used in populating the model suitable for your decision problem?	**All things considered, do you agree with the values used for the inputs?**	**Duration and extent of impact of lfestyle intervention**	Benefits of lifestyle intervention persist once intervention ends at 10 years	Benefits of lifestyle intervetion persist for 3 years which is the duration of the model	No effect of lifestyle intervention assumed after intervention ended	Yes - Assumes 100% benefit for 5 years of intervention but increasing underlying risk of transitioning to T2DM (reaching 20% at 10 years)	Yes - Benefits of lifestyle intervetion persist for 3 years which is the duration of the model
		Source of cost data	DPPOS, Medical Benefits Schedule Australia	Costs of implementing USDPP obtained from National University Hospital Cost Repository Data from Household Expenditure Survey for indirect costs of intervention	Finnish DPS and other literature	Finnish DPS for intervention costs Physician fee schedues, drug formularies, lab fee schedules and published literature for other costs	Indian DPP

		Source of outcome data	DPPOS	USDPP	Literature	Finnish DPS and US DPP	Indian DPP
		Discount rate	No discounting	3% for costs and QALYs	3% costs and utilities	5% for costs and utilities	No discounting of costs
Analysis							
Were the analyses performed using the model adequate to inform your decision problem?			Yes	Yes	Yes	Yes	No, only NNT not QALYs or DALYs assessed

Was there an adequate assessment of the effects of uncertainty?		**Key sensitivity analyses**	Sensitivity analyses: 1. All parameter values +/-10% 2. PSA with distributions in the following parameters: costs of T2DM, transition probablities, relative risk of mortality in IGT and T2DM, health state utilities	Sensitivity analyses: 1. Incremental QALYs associated with metformin and lifestyle intervention	No sensitivity analyses reported	Sensitivity analyses: 1. Baseline transition probablity to T2DM, returning to NGT or reverting to IGT 2. Risk reduction of each intervention 3. Cost of lifstyle intervention 4. prevalence of IGT 5. Cost of screening 6. Time horizon of analysis 7. Duration of treatment 8. Discount rate 9. Long-term risk of diabetes and impact of treatment	No senstivity analyses, not a modelling study
Reporting							
Was the reporting of the model adequate to inform your decision problem?	**Did the report of the analyses provide the results needed for your decision problem?**		Yes	Yes	Yes	Yes	Yes

	Was adequate nontechnical documentation freely accessible to any interested reader?		Yes	Yes	No	Yes	Yes
	Was technical documentation, in sufficient detail to allow (potentially) for replication, made available openly or under agreements that protect intellectual property?		Yes	Yes	No	No	Yes
Interpretation							
Was the interpretation of results fair and balanced?			Yes	Yes	Yes	Yes	Yes
Conflict of interests							
Were there any potential conflicts of interest?			No	No	No	Yes	No

If there were potential conflicts of interest, were steps taken to address these?			NA	NA	NA	Yes	NA

APPENDIX 4 CONTINUED:

QUESTIONS	**HELPER QUESTIONS**	**SPECIFIC ELEMENTS EXAMINED**	**Hoerger, 2007**	**Icks, 2007**	**Schaufler, 2010**	**Mortaz, 2012**	**Herman, 2013**
ASSESSMENT OF RELEVANCE							
1. Is the population relevant?	**Are the demographics similar?**	**Age, ethnicity, gender**	Age: 45-74yrs	Age: 60-74 years	Age: 35-75 years	Age: 40 years	45% members of minority groups Age >25 years 68% women
	Are risk factors similar?	**Type of pre-diabetes, BMI**	IFG and or IGT BMI>=25kg/m2	IFG and IGT BMI>=24kg/m2	IGT	IFG Overweight	IGT *and* IFG, BMI>24kg/m2

	Are behaviors similar?	**Compliance with intervention**	No lack of compliance modelled (50% non entry into intervention from screening modeled in sensitivity analysis)	30% attend screening test, 40% participate in lifestyle intervention, 59% comply with meformin	30% participation in screening Participation in or compliance with intervention not stated	Non-compliance with intervention and non-attendance of screening not specified	Only adherent participants included
	Is the medical condition similar?		Yes	Yes	Yes	Yes	Yes
2 Are any critical interventions missing?	**Does the intervention analyzed in the model match the intervention you are interested in?**	**Type of intervention**	1. Lifestyle intervention (US DPP) 2. Usual care	1. Lifestyle intervention (US DPP) 2. Metformin 3. Usual care	1. Lifestyle intervention (US DPP) 2. Metformin 3. Usual care	1. Lifestyle intervention (US DPP) 2. Metformin 3. Usual care	1. Lifestyle intervention (US DPP) 2. Lifestyle intervention (USDPP in groups format) 3. Metformin 4. Usual care
	Have all relevant comparators been considered?		Metformin considered in sensitivity analysis	Yes	Yes	Yes	Yes
	Does the background care in the model match yours?		US health system	German health system	German health system	Canadian health system	US health system

3 Are any relevant outcomes missing?	**Are the health outcomes relevant to you considered?**		Yes, QALY, LYG and cumulative diabetes incidence	No, only report cost per case of T2DM avoided	Yes	Yes	Yes, QALY
	Are the economic end points relevant to you considered?		Yes, $/QALY	No	Yes	Yes	Yes, $/QALY
4. Is the context (settings and circumstances) applicable?	**Is the geographic location similar?**		US	Germany	Germany	Canada	US
	Is the time horizon applicable to your decision?		Yes, lifetime simulation	No, 3 year model	Yes, lifetime	Yes, 10 years	Yes, 10 years
	Is the analytic perspective appropriate to your decision problem?	**Health system or societal perspective**	Health system perspective	Health system and societal perspective	Health system perspective	Health system perspective	Health system and modified societal perspective
ASSESSMENT OF CREDIBILITY							
Validation							
Is external validation of the model sufficient to make its results credible for your decision?	**Has the model been shown to accurately reproduce what was observed in the data used to create the model?**		Used previously published diabetes model, additional validation not reported	Not reported	Yes	Not reported	*Not a modelling study*
	Has the model been shown to accurately estimate what actually happened in one or more separate studies?		Not reported	Not reported	Yes	Not reported	

	Has the model been shown to accurately forecast what eventually happens in reality?		Not reported	Not reported	Not reported	Not reported	
Is internal verification of the model sufficient to make its results credible for your decision?	**Have the process of internal verification and its results been documented in detail?**		Used previously published diabetes model, additional validation not reported	Not reported	Yes	Not reported	*Not a modelling study*
	Has the testing been performed systematically?		Not reported	Not reported	Yes	Not reported	
	Does the testing indicate that all the equations are consistent with their data sources?		Not reported	Not reported	Not reported	Not reported	
	Does the testing indicate that the coding has been correctly implemented?		Not reported	Not reported	Yes	Not reported	
Does the model have sufficient face validity to make its results credible for your decision?	**Does the model contain all the aspects considered relevant to the decision?**		Yes	Yes	Yes	Yes	*Not a modelling study*
	Are all the relevant aspects represented and linked according to the best understanding of their characteristics?		Yes	Yes	Yes	*Yes*	

	Have the best available data sources been used to inform the various aspects?		Yes	Yes	Yes	*Yes*	
	Is the time horizon sufficiently long to account for all relevant aspects of the decision problem?		Yes	No, 3 years	Yes, lifetime	Yes, 10 years	
	Are the results plausible?		Yes	Yes	Yes	*Yes*	
	If others have rated the face validity, did they have a stake in the results?		Rating of face validity not reported	Rating of face validity not reported	Rating of face validity not reported	Rating of face validity not reported	
Design							
Is the design of the model adequate for your decision problem?	**Was there a clear, written statement of the decision problem, modeling objective, and scope of the model?**		Yes	Yes	Yes	Yes	*Not a modelling study*
	Was there a formal process for developing the model design (e.g.		Not reported	Not reported	Not reported	Not reported	

	influence diagram, concept map)?						
	Is the model concept and structure consistent with, and adequate to address, the decision problem/objective and the policy context?		Yes	No, transition back to NGT not modelled	Not clear of transition back to NGT modelled	No, transition back to NGT not modelled	
	Have any assumptions implied by the design of the model been described, and are they reasonable for your decision problem?		Continuation of lifestyle intervention as long as participant has prediabetes , assumption that risk reduction continues as long as intervention continues	Yes	Yes	Unclear how different interventions (lifestyle and metformin) are modelled	
	Is the choice of model type appropriate?		Yes	Yes	Yes	Yes	

	Were key uncertainties in model structure identified and their implications discussed?		Yes	Yes	Yes	No, limited sensitivity analyses relating mainly to frequency of screening	
Data							
Are the data used in populating the model suitable for your decision problem?	**All things considered, do you agree with the values used for the inputs?**	**Duration and extent of impact of lfestyle intervention**	No - Duration and extent of impact likley overstated: maintained at 55.8% relative risk reduction as long as intervention continues (which is as long as the participant has pre-diabetes)	Duration of impact: 3 years in line with US DPP	Extent of impact based on literature review Duration of impact not stated	No, Duration of impact not stated	Duration and extent of impact based on US DPP/DPPOS. However group-based lifetsyle program was assumed to be as effective as the individual program
		Source of cost data	USDPP	USDPP, German healthcare system	USDPP Doctors fee scale for the German SHI and pahramceutical prices and German cost of illness study	Report for the Ontario Ministry of Health and Long-term Care	USDPP/DPPOS
		Source of outcome data	USDPP	USDPP	USDPP	USDPP Not stated fot QALYs	USDPP/DPPOS

		Discount rate	3% for costs and QALYs	No discounting	5% costs, no discounting of QALYs	3% for costs and benefits	3% for costs and benefits in health system perspective Societal perspective undiscounted
Analysis							
Were the analyses performed using the model adequate to inform your decision problem?			Yes	Yes	Yes	Yes	Yes
Was there an adequate assessment of the effects of uncertainty?		**Key sensitivity analyses**	Sensitivity analyses: 1. Prevalence of pre-diabetes 2. Different age groups 3. Repeated screening every 3 years 4. Screening and diagnostic test costs 5. Different diagnostic test cut-offs 6. Metformin 7. Group lifestyle program 8. 20% less relatiev risk reduction of lifestyle program 9. 50%	Sensitivity analyses: 1. Participation rates in screening and intervention 2. Prevalence of IGT and T2DM 3. relatiev risk of T2DM in control group 4. Costs of patient time	Sensitivity analyses: 1. Costs of screening and intervention 2. Discount rate for costs 3. Discount rate for utilities 4. Participation in intervention 5. No effect of early detection on disease progression 6. Metformin	Sensitivity analyses: 1. Frequency of screening	No sensitivity analyses reported

			enrollment in intervention				
Reporting							
Was the reporting of the model adequate to inform your decision problem?	**Did the report of the analyses provide the results needed for your decision problem?**		Yes	Yes	Yes	Yes	Yes
	Was adequate nontechnical documentation freely accessible to any interested reader?		Yes	Yes	Yes	No	In previous publications from the same trial, but not in this publication

	Was technical documentation, in sufficient detail to allow (potentially) for replication, made available openly or under agreements that protect intellectual property?		No	Yes	No	No	No
Interpretation							
Was the interpretation of results fair and balanced?			Yes	Yes	Yes	Yes	Yes
Conflict of interests							
Were there any potential conflicts of interest?			No	No	No	No	Not stated
If there were potential conflicts of interest, were steps taken to address these?			NA	NA	NA	NA	NA

APPENDIX 4 CONTINUED:

QUESTIONS	HELPER QUESTIONS	SPECIFIC ELEMENTS EXAMINED	Liu, 2013	Gilles, 2008	Colaguiri, 2008	Bertram, 2010	Neumann, 2011
ASSESSMENT OF RELEVANCE							
1. Is the population relevant?	**Are the demographics similar?**	**Age, ethnicity, gender**	Age: 25-74 years Chinese population	Age 45 years UK population	55-74 years Australian population and 45-54 year old people with BMI>30kg/m2	Age >55 years or age >45 years with risk factors (BMI, blood pressure, family history of T2DM etc.) or high risk groups	Based on population in Saxony, Germany
	Are risk factors similar?	**Type of pre-diabetes, BMI**	IGT	IGT	IFG or IGT	IFG and IGT	FINDRISK score 11-20 or FINDRISK >=21 and no diagnosis of T2DM

	Are behaviors similar?	**Compliance with intervention**	100% compliance assumed in base case, 60% and 80% modelled in sensitivity analyses	100% compliance with screening and intervention in base case, modelled 70% and 50% compliance in sensitivity analyses	Assumed only 25-50% would participate in screening and intervention	Non-compliance not explicitly modelled	Non-compliance not explicitly modelled
	Is the medical condition similar?		Yes	Yes	Yes	Yes	Yes
2 Are any critical interventions missing?	**Does the intervention analyzed in the model match the intervention you are interested in?**	**Type of intervention**	1. Lifestyle intervention (Da Qing) 2. Usual care	1. Lifestyle intervention 2. Metformin 3. Usual care	1. Lifestyle intervention (unspecified) 2. Usual care	1. Diet and exercise 2. Exercise 3. Diet 4. Acarbose 5. Metformin 6. Orlistat 7. Usual care	1. Lifestyle program (based on PREDIAS and SDPP) 2. Usual care
	Have all relevant comparators been considered?		No, metformin not considered	Yes	No, metformin not modelled	Yes	No, metformin not modelled
	Does the background care in the model match yours?		Chinese health system	UK health system	Australian health system	Austrlian health system	German health system

3 Are any relevant outcomes missing?	**Are the health outcomes relevant to you considered?**		Yes, QALY	Yes, QALYs and LYG	Yes, DALYs	Yes, DALYs	Yes, QALYs
	Are the economic end points relevant to you considered?		Yes, $/QALY	Yes, £/QALY	Yes, $/DALY	Yes, $/DALY	Yes, Euro/QALY
4. Is the context (settings and circumstances) applicable?	**Is the geographic location similar?**		China	UK health system	Australia	Australia	Germany
	Is the time horizon applicable to your decision?		Yes, 40 years	Yes, 50 year simulation	Yes, 10 year model	Yes, until age 100 years or death	Yes, lifetime simulation
	Is the analytic perspective appropriate to your decision problem?	**Health system or societal perspective**	Societal perspective	Health system perspective	Societal perspective	Health system perspective	Societal perspective
ASSESSMENT OF CREDIBILITY							
Validation							
Is external validation of the model sufficient to make its results credible for your decision?	**Has the model been shown to accurately reproduce what was observed in the data used to create the model?**		Not reported	Not reported	Used previously published diabetes model	Not reported	No external validation possible as German cohort data not available
	Has the model been shown to accurately estimate what actually happened in one or more separate studies?		Not reported	Not reported	Not reported	Not reported	No external validation posisble as German cohort data not available

	Has the model been shown to accurately forecast what eventually happens in reality?		Not reported	Not reported	Not reported	Not reported	Not reported
Is internal verification of the model sufficient to make its results credible for your decision?	**Have the process of internal verification and its results been documented in detail?**		Not reported	Not reported	Used previously published diabetes model	Not reported	Not reported
	Has the testing been performed systematically?		Not reported	Not reported	Not reported	Not reported	Not reported
	Does the testing indicate that all the equations are consistent with their data sources?		Not reported	Not reported	Not reported	Not reported	Not reported
	Does the testing indicate that the coding has been correctly implemented?		Not reported	Not reported	Not reported	Not reported	Not reported
Does the model have sufficient face validity to make its results credible for your decision?	**Does the model contain all the aspects considered relevant to the decision?**		Yes	Yes	Yes	Yes	Yes
	Are all the relevant aspects represented and linked according to the best understanding of their characteristics?		Yes	Yes	Yes	Yes	Yes

	Have the best available data sources been used to inform the various aspects?		Yes	Features of the lifestyle intervention modelled are unclear	Type of lifestyle intervention unclear	Yes	Patients are identified based on FINDRISK score, but transition probabilities are used from studies where participants identified using FPG and OGTT
	Is the time horizon sufficiently long to account for all relevant aspects of the decision problem?		Yes, 40 years	Yes, 50 years	Yes, 10 years	Yes, until 100 years or dead	Yes, lifetime
	Are the results plausible?		Yes	Yes	Yes	Yes	Yes
	If others have rated the face validity, did they have a stake in the results?		Rating of face validity not reported	Rating of face validity not reported	Rating of face validity not reported	Rating of face validity not reported	Rating of face validity not reported
Design							
Is the design of the model adequate for your decision problem?	**Was there a clear, written statement of the decision problem, modeling objective, and scope of the model?**		Yes	Yes	Yes	Yes	Yes

	Was there a formal process for developing the model design (e.g. influence diagram, concept map)?		Not reported	Not reported	Not reported	Not reported	Not reported
	Is the model concept and structure consistent with, and adequate to address, the decision problem/objective and the policy context?		Yes	No, transition back to NGT not modelled	No, transition back to NGT not modelled	Yes	Yes
	Have any assumptions implied by the design of the model been described, and are they reasonable for your decision problem?		No - assumption regarding duration of impact of this intervention is not stated	No - duration and extent of benefit of lifestyle intervention and metformin is unclear	Yes	Yes	Yes
	Is the choice of model type appropriate?		Yes	Yes	Yes	Yes	Yes
	Were key uncertainties in model structure identified and their		Partially	Yes	Yes	Yes	Yes

	implications discussed?						
Data							
Are the data used in populating the model suitable for your decision problem?	**All things considered, do you agree with the values used for the inputs?**	**Duration and extent of impact of lfestyle intervention**	No - assumption regarding duration of impact of this intervention is not stated	Duration of impact not explicit	Extent of impact were from USDPP and FDPS (risk reductions of 60% for IGT and 30% for IFG) and impact modelled unchanged for 10 years as intervention last for 10 years	Effect of lifestyle change will decay by 10% per year, whereas effect of medications will remain constant Lifestyle intervention continues as long as patient has pre-diabetes	Lifestyle program continues for 5 years and benefits of program are modelled for 6 years, declining linearly from year 1 to year 6
		Source of cost data	Literature	Literature review	Unspecified intervetion costing A$500	Systematic review and meta-analysis	Saxon Diabetes Prevention Programme, CODE-2 study
		Source of outcome data	Literature	Literature review	Literature (FDPS and UKPDS)	Literature	Finnish DPS, and literature review

		Discount rate	3% costs and QALYs	3.5% costs and QALYs	3% for costs	3% costs	3% costs and QALYs
Analysis							
Were the analyses performed using the model adequate to inform your decision problem?			Yes	Yes	Yes	Yes	Yes
Was there an adequate assessment of the effects of uncertainty?		**Key sensitivity analyses**	Sensitivity analyses: 1. Positive rates of screening 2. Incidence of IGT and T2DM 3. Incidence of maortality and diabetes related complications 4. Treatment of diabetes-related disorders 5. Utilities of all health states	Sensitivity analyses: 1. Prevalence 2. Compliance 3. Sensitivity of screening tests 4. Cost of interventions 5. Cost of diabetes 6. Effectiveness of interventions 7. Time horizon	Sensitivity analyses: 1. 70% take up of lfestyle program 2. Lower complication rates of T2DM 3. Reduce impact of intervention 4. Increasing cost of intervention ($1,000 p.a.) 5. Increasing proportion of undiagnosed diabetes 6. Increasing proportion of population screened	Sensitivity analysis: 1. Second screening OGTT	Probabilistic sensitivity analysis including: 1. All transition probabilities 2. Cost of NGT, IGT and T2DM 3. Cost of intervention

					7. Prevalence 8. Discount rate		
Reporting							
Was the reporting of the model adequate to inform your decision problem?	**Did the report of the analyses provide the results needed for your decision problem?**		Yes	Yes	Yes	Yes	Yes
	Was adequate nontechnical documentation freely accessible to any interested reader?		Yes	Yes	No	Yes	Yes

	Was technical documentation, in sufficient detail to allow (potentially) for replication, made available openly or under agreements that protect intellectual property?		No	No	No	No	Yes
Interpretation							
Was the interpretation of results fair and balanced?			Yes	Yes	Yes	Yes	Yes
Conflict of interests							
Were there any potential conflicts of interest?			No	No	Not stated	No	No
If there were potential conflicts of interest, were steps taken to address these?			NA	NA	NA	NA	NA

APPENDIX 4 CONTINUED:

QUESTIONS	HELPER QUESTIONS	SPECIFIC ELEMENTS EXAMINED	Smith, 2010	Feldman, 2013	Jacobs Van Der Bruggen, 2007	Irvine, 2011	Sagarra, 2013
ASSESSMENT OF RELEVANCE							
1. Is the population relevant?	Are the demographics similar?	Age, ethnicity, gender	US population, 55 yrs age 27.1% African American	Not reported	Age: 30-70 years	Age: 40-70 years BMI>=25kg/m 2 First degree relative with T2DM or waist circumference >94cm men and >80 cm women, history of coronary heart disease, IFG or gestational diabetes	Age: 45-75 years
	Are risk factors similar?	Type of pre-diabetes, BMI	BMI >=25kg/m2 and metabolic syndrome	Participants with metabolic syndrome recruited (central obesity, high triglyceride and HDL, high blood pressure, impaired fasting glucose or previously diagnosed T2DM). 34% of participants had T2DM	Intensive intervention for obese adults Community intervention for the whole population	IFG and T2DM	IGT, IFG or IGT and IFG

	Are behaviors similar?	Compliance with intervention	47% who screened positive enrolled in intervention	Non compliance not modelled, participation rates based on Kalmar Metabolic Syndrome Program	50% compliance with intensive lifestyle intervention	Compliance with intervention included (57-97% in different activities)	Failure to attend screening (20%), failure to attend confirmatory blood test (42% of total population), failure to enrol in intervention (11.5%)
	Is the medical condition similar?		Yes	Yes	Yes	Yes	Yes
2 Are any critical interventions missing?	Does the intervention analyzed in the model match the intervention you are interested in?	Type of intervention	1. Lifestyle program (modified US DPP, less sessions and group format) 2. Usual care	1. Lifestyle program (Kalmar Metabolic Syndrome Program) 2. Usual care	1. Intensive lifestyle program (3 years) 2. Community-wide nutrition and exercise program 3. Usual care	1. Lifestyle program (UEA-IFG) 2. Usual care	1. Individual lifestyle program (DE-PLAN-CAT) 2. Group lifestyle program (DE-PLAN-CAT) 3. Usual care
	Have all relevant comparators been considered?		No, metformin not modelled	No, metformin not modelled	No, metformin not modelled	No, metformin not included	Metformin not included
	Does the background care in the model match yours?		US health system	Swedish health system	The Netherlands health system	UK health system	Spanish health system

3 Are any relevant outcomes missing?	Are the health outcomes relevant to you considered?		Yes, QALY	Yes, QALYs	Yes, QALYs	No, impact on diabetes incidence not considered	Yes, QALYs
	Are the economic end points relevant to you considered?		Yes, $/QALY	Yes, Euro/QALY	Yes, Euro/QALY	Yes, £/QALY	Yes, Euro/QALY
4. Is the context (settings and circumstances) applicable?	Is the geographic location similar?		US	Sweden	The Netherlands	The UK	Spain
	Is the time horizon applicable to your decision?		No, 3 year analysis	Yes, until 85 years of age	Yes, 70 years	No, less than 1 year	No, 4 year analysis
	Is the analytic perspective appropriate to your decision problem?	Health system or societal perspective	Health system perspective	Health system and Societal perspective	Health system perspective	Health system perspective	Health system perspective
ASSESSMENT OF CREDIBILITY							
Validation							
Is external validation of the model sufficient to make its results credible for your decision?	Has the model been shown to accurately reproduce what was observed in the data used to create the model?		Used previously published diabetes model	Not reported	Not reported	*Not a modelling study*	*Not a modelling study*
	Has the model been shown to accurately estimate what actually happened		Not reported	Not reported	Not reported		

	in one or more separate studies?						
	Has the model been shown to accurately forecast what eventually happens in reality?		Not reported	Not reported	Not reported		
Is internal verification of the model sufficient to make its results credible for your decision?	Have the process of internal verification and its results been documented in detail?		Used previously published diabetes model	Not reported	Based on previously published model (National Institute for Public Health and the Environment (RIVM) chronic disease model (CDM)	*Not a modelling study*	*Not a modelling study*
	Has the testing been performed systematically?		Not reported	Not reported	Not reported		
	Does the testing indicate that all the equations are consistent with their data sources?		Not reported	Not reported	Not reported		
	Does the testing indicate that the coding has been correctly implemented?		Not reported	Not reported	Not reported		
Does the model have sufficient face validity to make its results credible for your decision?	Does the model contain all the aspects considered relevant to the decision?		Yes	Yes	Yes	*Not a modelling study*	*Not a modelling study*

	Are all the relevant aspects represented and linked according to the best understanding of their characteristics?		Yes	Yes	Yes		
	Have the best available data sources been used to inform the various aspects?		Yes	Yes	Yes		
	Is the time horizon sufficiently long to account for all relevant aspects of the decision problem?		No, 3 year analysis	Yes	Yes		
	Are the results plausible?		Yes	Yes	Yes		
	If others have rated the face validity, did they have a stake in the results?		Rating of face validity not reported	Rating of face validity not reported	Rating of face validity not reported		
Design							

Is the design of the model adequate for your decision problem?	Was there a clear, written statement of the decision problem, modeling objective, and scope of the model?		Yes	Yes	Yes	Not a modelling study	Not a modelling study
	Was there a formal process for developing the model design (e.g. influence diagram, concept map)?		Not reported	Not reported	Not reported		
	Is the model concept and structure consistent with, and adequate to address, the decision problem/objective and the policy context?		Yes	Yes	Yes		
	Have any assumptions implied by the design of the model been described, and are they reasonable for your decision problem?		Yes	Yes	Yes		

	Is the choice of model type appropriate?		Yes	Yes	Yes		
	Were key uncertainties in model structure identified and their implications discussed?		Yes	Yes	Yes		
Data							
Are the data used in populating the model suitable for your decision problem?	All things considered, do you agree with the values used for the inputs?	Duration and extent of impact of lfestyle intervention	Extent of impact: based on community based USDPP in Pennsylvania for year 1, then placebo arm of the USDPP for years 2 and 3	Improvements in risk profile seen following lifstyle program remain constant for 12 months after intervention (2 years in total), then decline annually, with no additional benefit modelled from the 5th year onwards	Community intervention: BMI decrease by 0.05kg/m2 and 15% inactive individuals increase activity Intensive intervention: BMI decrease by 0.3kg/m2 -1.5kg/m2 and 50-75% inactive individuals increase activity	Within-trial analysis	Yes, in-trial analysis
		Source of cost data	Community-based, modified USDPP, UKPDS, Framingham Heart Study	Kalmar Metabolic Syndrome Program	Two Dutch trials (Heart Health Limburg, Lifstyel Intervention and Impaired Glucose Tolerance Maastricht)	UK trial (UEA-IFG)	Collection of cost data in DE-PLAN-CAT trial

		Source of outcome data	Community-based modified USDPP in Pennsylvania	Kalmar Metabolic Syndrome Program, literature	Literature	UK trial (UEA-IFG)	15D questionaire in DE-PLAN-CAT trial
		Discount rate	3% for costs and QALYs	3% costs and QALYs	4% costs and 1.5% effects	No discounting, analysis <1 year	No discounting due to short analytical time frame
Analysis							
Were the analyses performed using the model adequate to inform your decision problem?			Yes	Yes	Yes	Yes, but short timeframe limits applicability	Yes

Was there an adequate assessment of the effects of uncertainty?		Key sensitivity analyses	Probabilistic sensitivity analyses including: 1. Transition probabilities 2. Enrllment 3. Screening true positive rate 4. Utilities	Sensitivity analyses include: 1. Discount rate 2. Duration of relatiev risk reduction following lifetsyle program 3. Grouping by gender or risk factor	Sensitivity analyses: 1. Intervention costs 2. Discount rates	Sensitivity analyses: 1. Including costs of screening 2. IFG participants only 3. T2DM participants only 4. Only include participants with >4 months follow-up 5. Complete case results only 6. Excluding trainer costs	Sensitivity analyses: 1. Costs 2. Effectiveness of intervention
Reporting							
Was the reporting of the model adequate to inform your decision problem?	Did the report of the analyses provide the results needed for your decision problem?		Yes	Yes	Yes	Yes	Yes
	Was adequate nontechnical documentation freely accessible to any interested reader?		Yes	Yes	Yes	Yes	Yes, not a modelling study

	Was technical documentation, in sufficient detail to allow (potentially) for replication, made available openly or under agreements that protect intellectual property?		Yes	Unclear, supplementary material created but no longer available online	No	Yes	NA
Interpretation							
Was the interpretation of results fair and balanced?			Yes	Yes	Yes	Yes	Yes
Conflict of interests							
Were there any potential conflicts of interest?			Not stated	No	Not stated	No	No
If there were potential conflicts of interest, were steps taken to address these?			NA	NA	NA	NA	NA

APPENDIX 4 CONTINUED:

QUESTIONS	HELPER QUESTIONS	SPECIFIC ELEMENTS EXAMINED	Zhou, 2012	Dall, 2015
ASSESSMENT OF RELEVANCE				
1. Is the population relevant?	Are the demographics similar?	Age, ethnicity, gender	Age: 18-64 years, 65-84 yrs US national population	Adults in US population (from NHANES)
	Are risk factors similar?	Type of pre-diabetes, BMI	Obesity and FPG or HbA1c	Elevated HbA1c
	Are behaviors similar?	Compliance with intervention	50-60% uptake of lifetsyle intervention modelled	Non-compliance not modelled

	Is the medical condition similar?		Yes	Yes
2 Are any critical interventions missing?	Does the intervention analyzed in the model match the intervention you are interested in?	Type of intervention	1. Lifestyle program (community-based translation of USDPP) 2. Usual care	1. Lifestyle program (based on DPPOS) 2. Usual care
	Have all relevant comparators been considered?		No, metformin not included	No, metformin excluded
	Does the background care in the model match yours?		US health system	US health system
3 Are any relevant outcomes missing?	Are the health outcomes relevant to you considered?		Yes, QALYs	No, only report net savings
	Are the economic end points relevant to you considered?		Yes, $/QALY	No
4. Is the context (settings and circumstances) applicable?	Is the geographic location similar?		US	US
	Is the time horizon applicable to your decision?		Yes, 25 years	Yes, 10 years
	Is the analytic perspective appropriate to your decision problem?	Health system or societal perspective	Health system perspective	Societal perspective
ASSESSMENT OF CREDIBILITY				
Validation				

Is external validation of the model sufficient to make its results credible for your decision?	Has the model been shown to accurately reproduce what was observed in the data used to create the model?		Yes, used a previously published and validated model	Not reported
	Has the model been shown to accurately estimate what actually happened in one or more separate studies?		Yes, used a previously published and validated model	Not reported
	Has the model been shown to accurately forecast what eventually happens in reality?		Yes, used a previously published and validated model	Not reported
Is internal verification of the model sufficient to make its results credible for your decision?	Have the process of internal verification and its results been documented in detail?		Not reported	Yes
	Has the testing been performed systematically?		Not reported	Yes
	Does the testing indicate that all the equations are consistent with their data sources?		Not reported	Yes
	Does the testing indicate that the coding has been correctly implemented?		Not reported	Yes
Does the model have sufficient face validity to make its results credible for your decision?	Does the model contain all the aspects considered relevant to the decision?		Yes	Yes

	Are all the relevant aspects represented and linked according to the best understanding of their characteristics?		Yes	Yes
	Have the best available data sources been used to inform the various aspects?		Yes	No, assumes 50% reduction in incidence of T2DM d/t lfestyle programs
	Is the time horizon sufficiently long to account for all relevant aspects of the decision problem?		Yes, 25 years	Yes
	Are the results plausible?		Yes	No, due to assumptions regarding compliance and risk eduction
	If others have rated the face validity, did they have a stake in the results?		Rating of face validity not reported	Rating of face validity not reported
Design				
Is the design of the model adequate for your decision problem?	Was there a clear, written statement of the decision problem, modeling objective, and scope of the model?		Yes	Yes

	Was there a formal process for developing the model design (e.g. influence diagram, concept map)?		Yes	Yes
	Is the model concept and structure consistent with, and adequate to address, the decision problem/objective and the policy context?		Yes	Yes
	Have any assumptions implied by the design of the model been described, and are they reasonable for your decision problem?		Yes	Assumptions regarding 100% compliance and 50% cumulative reduction in diabetes incidence are ambitious
	Is the choice of model type appropriate?		Yes	Yes
	Were key uncertainties in model structure identified and their implications discussed?		Yes	Yes
Data				

Are the data used in populating the model suitable for your decision problem?	All things considered, do you agree with the values used for the inputs?	Duration and extent of impact of lfestyle intervention	50-60% reduction in diabetes risk in first 2 years of program, 10-15% in third year, no impact thereafter	41% cumulative reduction in diabetes incidence over 10 years is ambitious
		Source of cost data	Modified USDPP (Promoting a Lifestyle of Activity and Nutrition for Working to Alter the Risk of Diabetes) and DPPOS	Literature and MEPS/NHIS
		Source of outcome data	Claims data	Literature (CDC, UKPDS, Framingham)
		Discount rate	3% for costs and effects	3% for costs and QALYs
Analysis				

Were the analyses performed using the model adequate to inform your decision problem?			Yes	Yes
Was there an adequate assessment of the effects of uncertainty?		Key sensitivity analyses	Sensitivity analyses: 1. Effectiveness of lifstyle intervention 2. Cost of intervention 3. Age of participants 4. Rates of participation in screening test and intervention	Sensitivity analyses: 1. Intervention effect 2. HbA1c 3. BMI 4. Bood pressure 5. Lipid profile 3. Annual probablity of T2Dm and its complications
Reporting				
Was the reporting of the model adequate to inform your decision problem?	Did the report of the analyses provide the results needed for your decision problem?		Yes	Yes
	Was adequate nontechnical documentation freely accessible to any interested reader?		Yes	Yes

	Was technical documentation, in sufficient detail to allow (potentially) for replication, made available openly or under agreements that protect intellectual property?		No	Yes
Interpretation				
Was the interpretation of results fair and balanced?			Yes	Yes
Conflict of interests				
Were there any potential conflicts of interest?			Not stated	Yes
If there were potential conflicts of interest, were steps taken to address these?			NA	Unclear