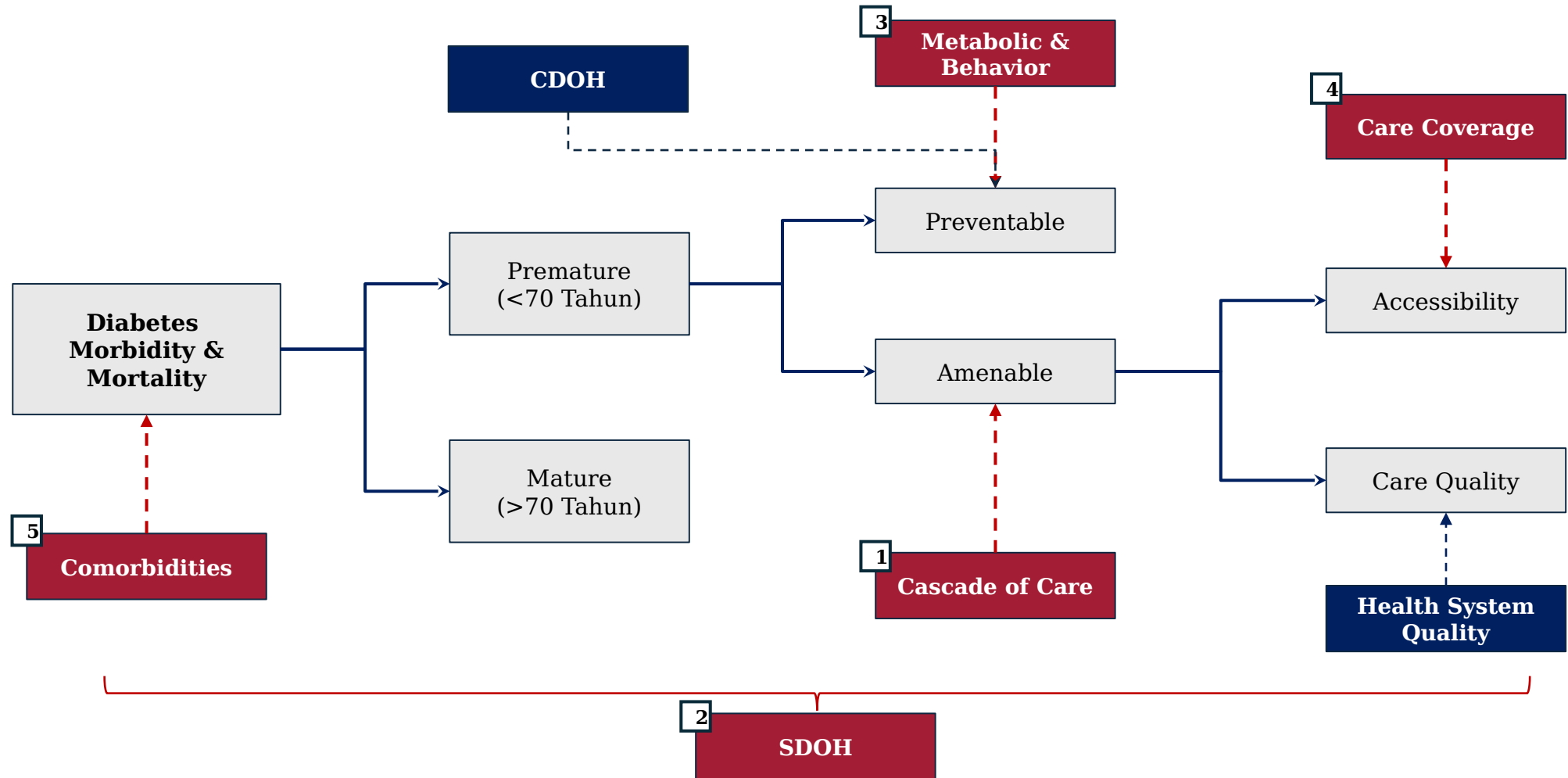


Diabetes Health System Strengthening

ARC Institute - Center for Diabetes Care Reform



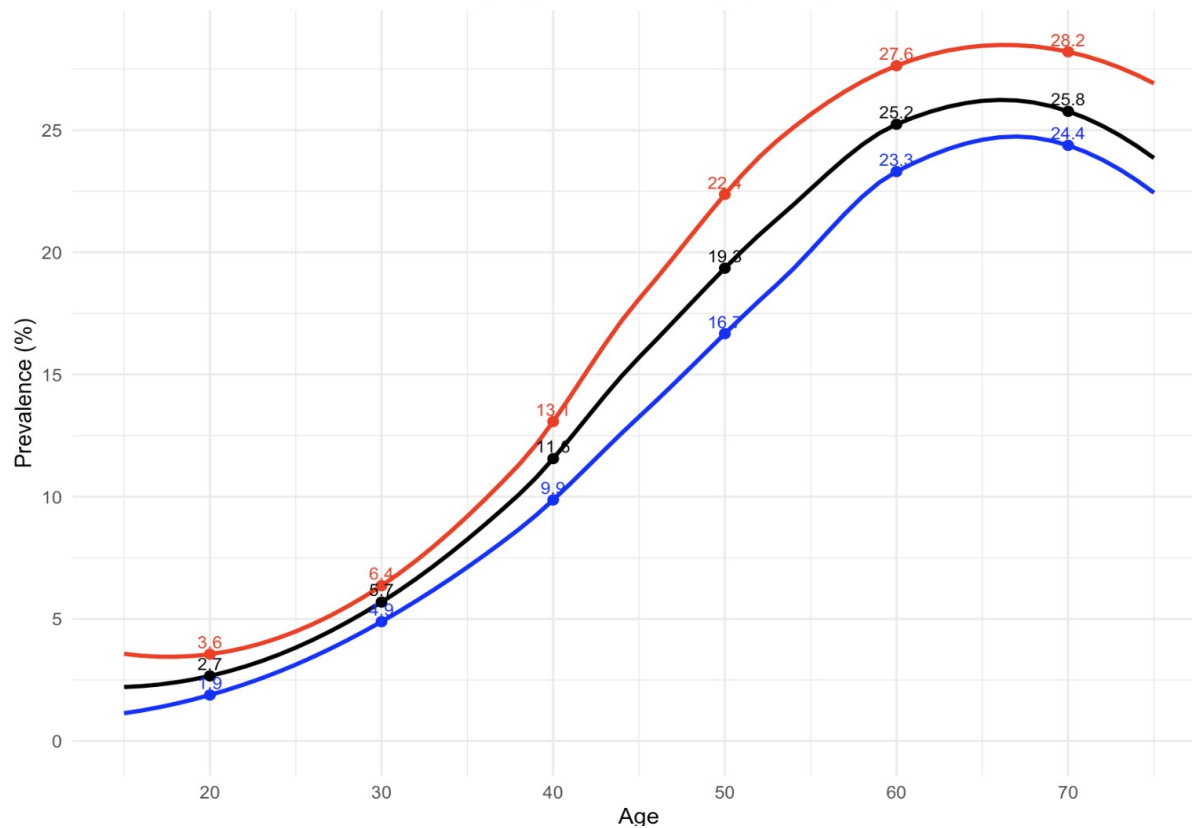
Diabetes Care Reform: Preventable Policy's

Framework

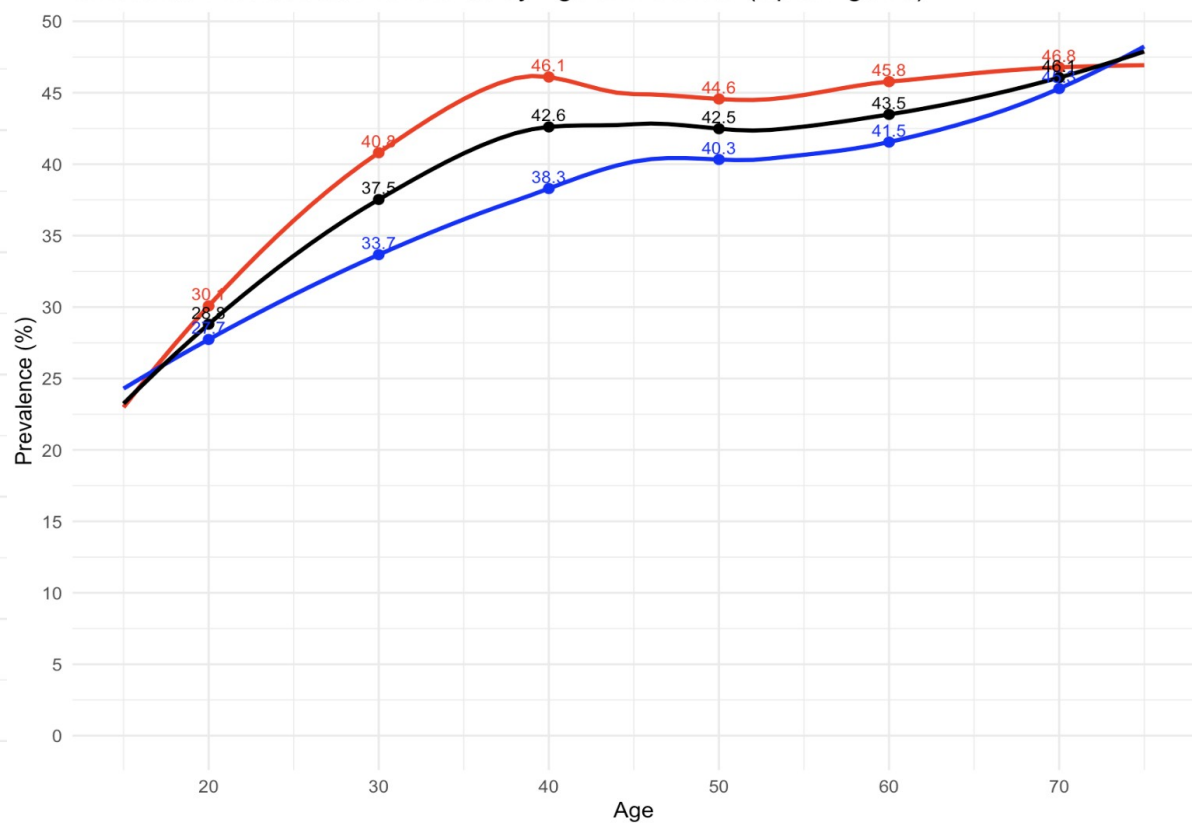
1. Preventable Framework
2. Amenable Framework
 1. Screening and Case Finding Path
 2. Assessment and Reassessment Path
 - 3. Loop 1. Prediabetes Path**
 - 4. Loop 2.1 Diabetes - Intensive Stage**
 - 5. Loop 2.2 Diabetes - Control Stage**
 - 6. Loop 3.1 Diabetes with Complication - Intensive Stage**
 - 7. Loop 3.2 Diabetes with Complication - Control Stage**
 - 8. Loop 4. Emergency Diabetes**
 9. Cross pathway Framework (Sistem rujukan dan rujuk balik)

Diabetes Care Reform: Diabetes Prevalence by Age

Smoothed Diabetes Prevalence by Age and Gender (Up to Age 75)



Smoothed Prediabetes Prevalence by Age and Gender (Up to Age 75)

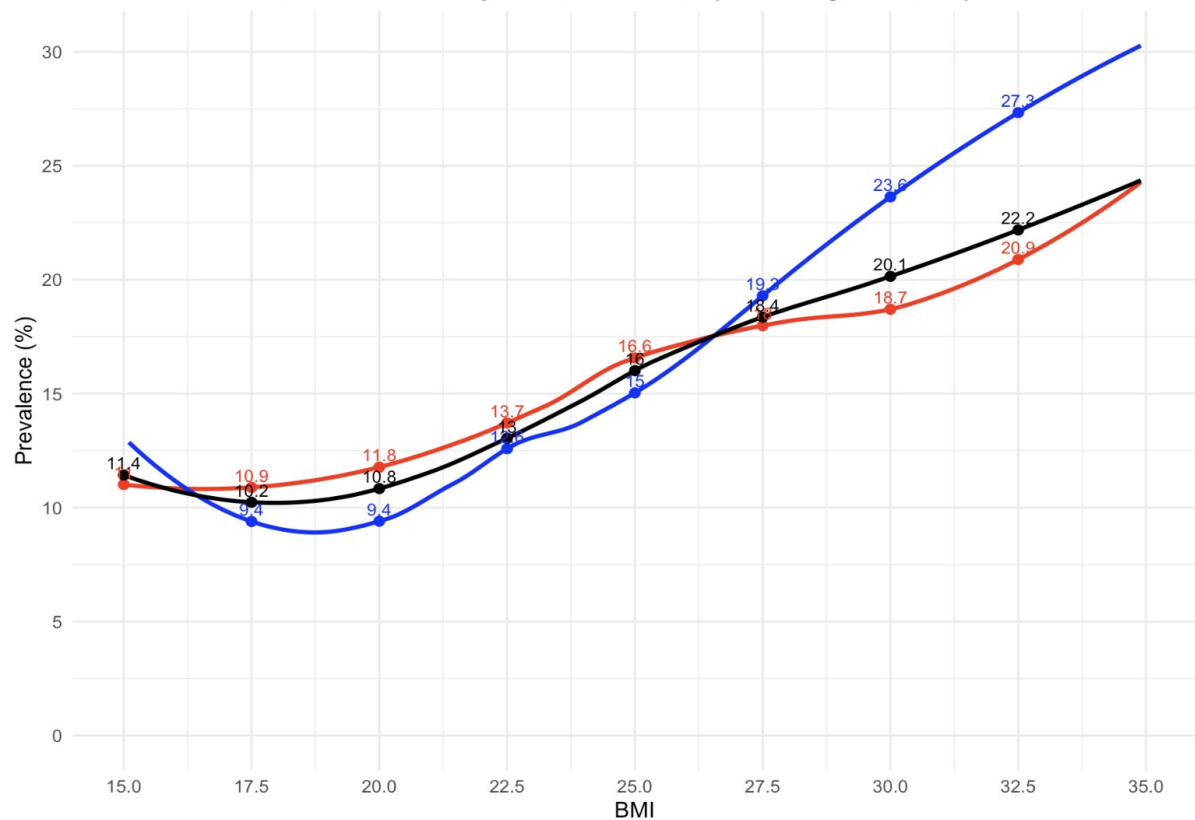


gender

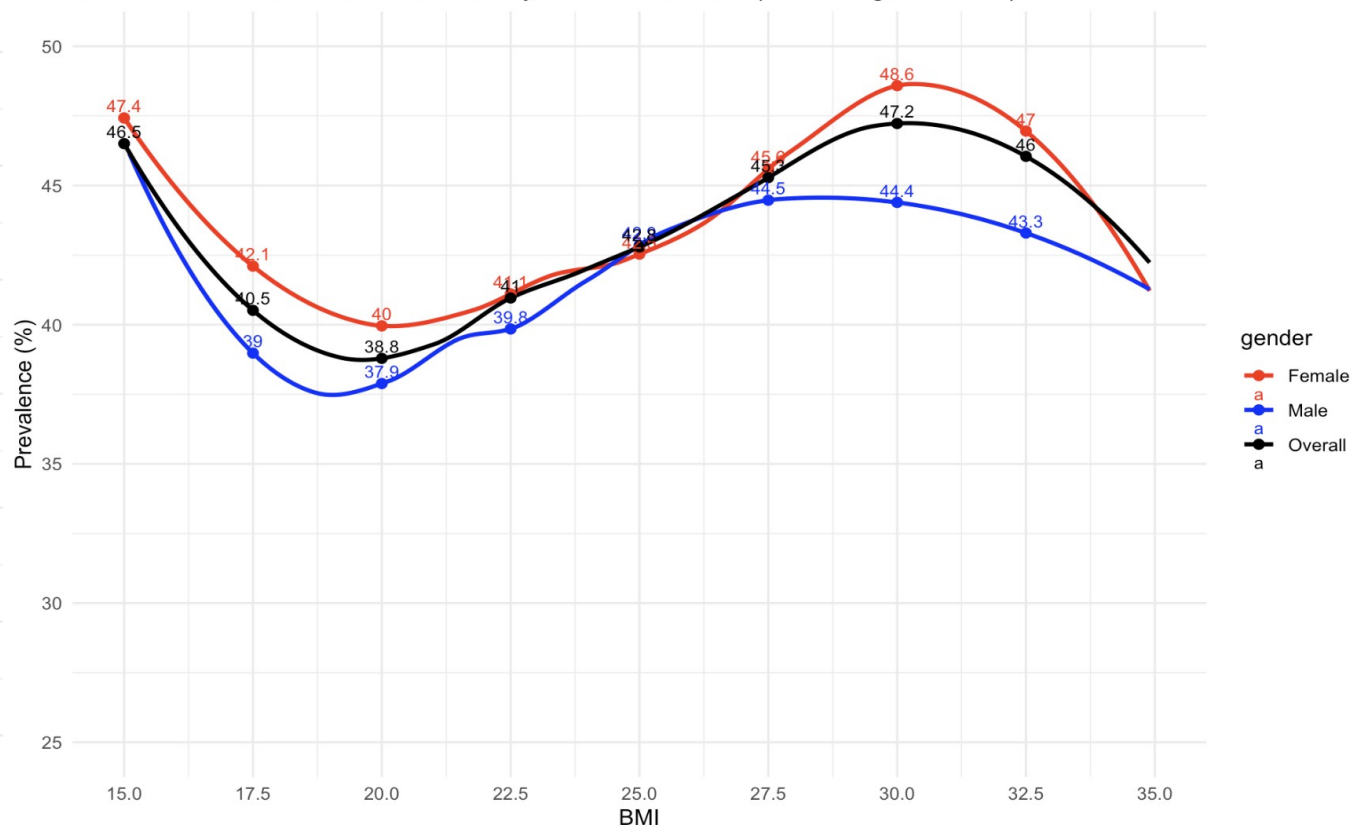
- Female
- Male
- Overall

Diabetes Care Reform: Diabetes Prevalence by BMI

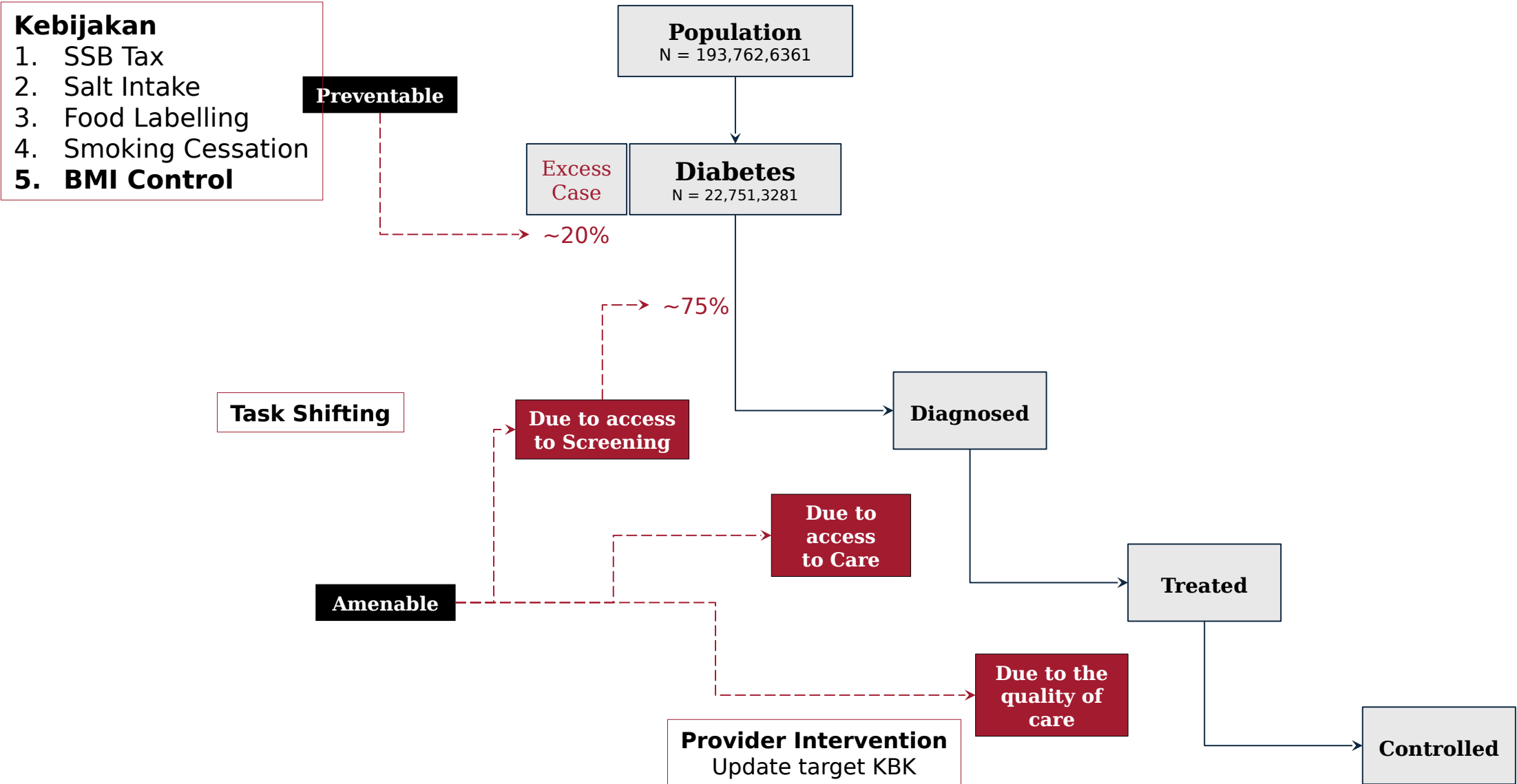
Smoothed Diabetes Prevalence by BMI and Gender (BMI Range 15 to 35)



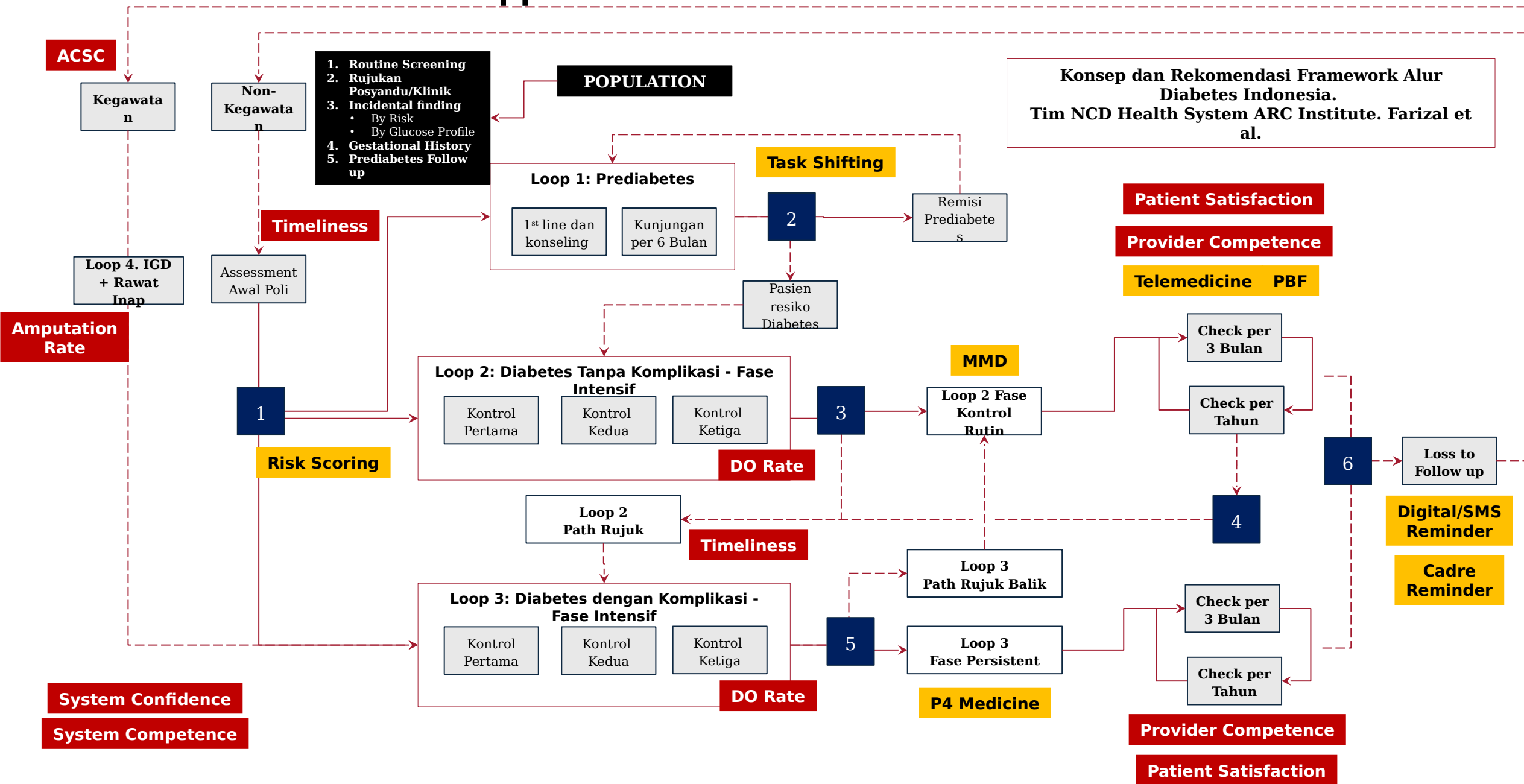
Smoothed Prediabetes Prevalence by BMI and Gender (BMI Range 15 to 35)



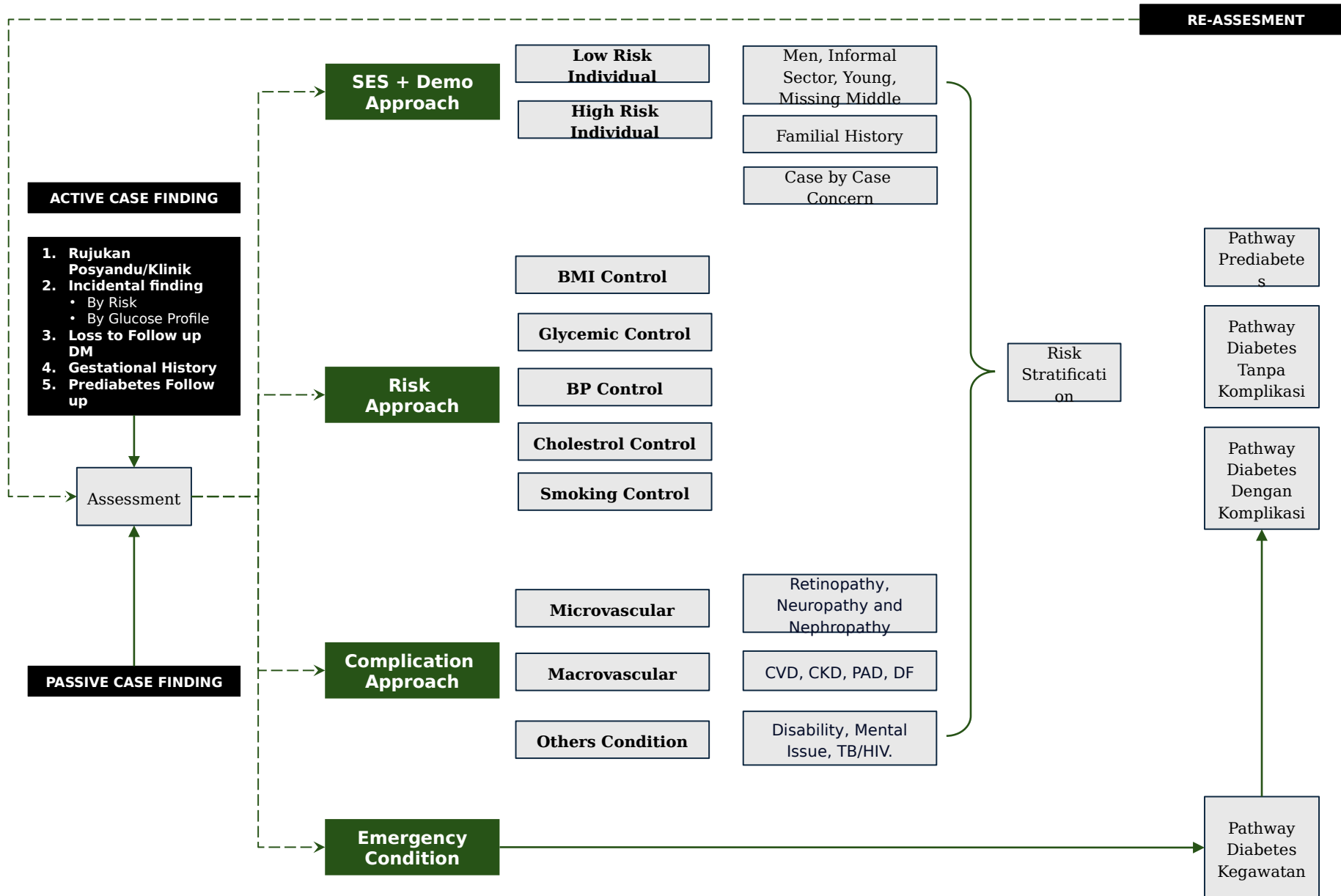
Diabetes Care Reform: Overview of Policy's



Diabetes Care Reform: Amenable Care - Health System Approach



Diabetes Care Reform: Clinical Pathway - Early Assessment



Diabetes Care Reform: Clinical Pathway - Early Assessment

		INITIAL VISIT	EVERY FOLLOW-UP VISIT	ANNUAL VISIT
PAST MEDICAL AND FAMILY HISTORY	Diabetes history			
	▪ Characteristics at onset (e.g., age, symptoms)	✓		
	▪ Review of previous treatment plans and response	✓		
	▪ Assess frequency/cause/severity of past hospitalizations	✓		
	Family history			
	▪ Family history of diabetes in a first-degree relative	✓		
	▪ Family history of autoimmune disorder	✓		
	Personal history of complications and common comorbidities			
	▪ Common comorbidities (e.g., obesity, OSA, NAFLD)	✓		
	▪ High blood pressure or abnormal lipids	✓		✓
	▪ Macrovascular and microvascular complications	✓		✓
	▪ Hypoglycemia: awareness/frequency/causes/timing of episodes	✓	✓	✓
	▪ Presence of hemoglobinopathies or anemias	✓		✓
	▪ Last dental visit	✓		✓
	▪ Last dilated eye exam			✓
	▪ Visits to specialists			✓
	▪ Disability assessment and use of assistive devices (e.g., physical, cognitive, vision and auditory, history of fractures, podiatry)	✓	✓	✓
▪ Personal history of autoimmune disease	✓			
Interval history				
▪ Changes in medical/family history since last visit		✓	✓	

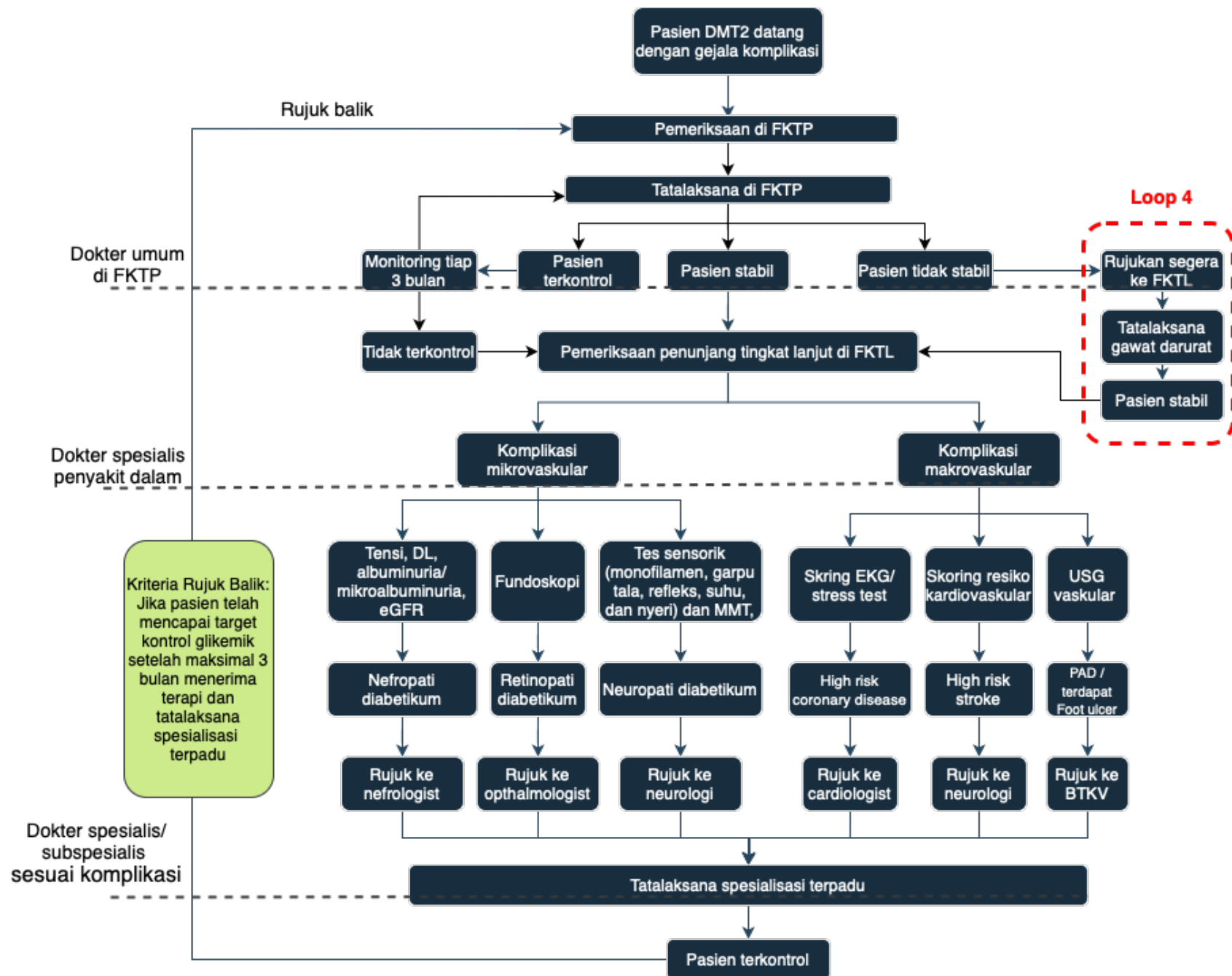
Diabetes Care Reform: Clinical Pathway - Early Assessment

		INITIAL VISIT	EVERY FOLLOW-UP VISIT	ANNUAL VISIT
BEHAVIORAL FACTORS	▪ Eating patterns and weight history	✓	✓	✓
	▪ Assess familiarity with carbohydrate counting (e.g., type 1 diabetes, type 2 diabetes treated with MDI)	✓		✓
	▪ Physical activity and sleep behaviors; screen for obstructive sleep apnea	✓	✓	✓
	▪ Tobacco, alcohol, and substance use	✓		✓
MEDICATIONS AND VACCINATIONS	▪ Current medication plan	✓	✓	✓
	▪ Medication-taking behavior, including rationing of medications and/or medical equipment	✓	✓	✓
	▪ Medication intolerance or side effects	✓	✓	✓
	▪ Complementary and alternative medicine use	✓	✓	✓
	▪ Vaccination history and needs	✓		✓
TECHNOLOGY USE	▪ Assess use of health apps, online education, patient portals, etc.	✓		✓
	▪ Glucose monitoring (meter/CGM): results and data use	✓	✓	✓
	▪ Review insulin pump settings and use, connected pen and glucose data	✓	✓	✓
SOCIAL LIFE ASSESSMENT	Social network			
	▪ Identify existing social supports	✓		✓
	▪ Identify surrogate decision maker, advanced care plan	✓		✓
	▪ Identify social determinants of health (e.g., food security, housing stability & homelessness, transportation access, financial security, community safety)	✓		✓
	▪ Assess daily routine and environment, including school/work schedules and ability to engage in diabetes self-management	✓	✓	✓

Diabetes Care Reform: Clinical Pathway - Early Assessment

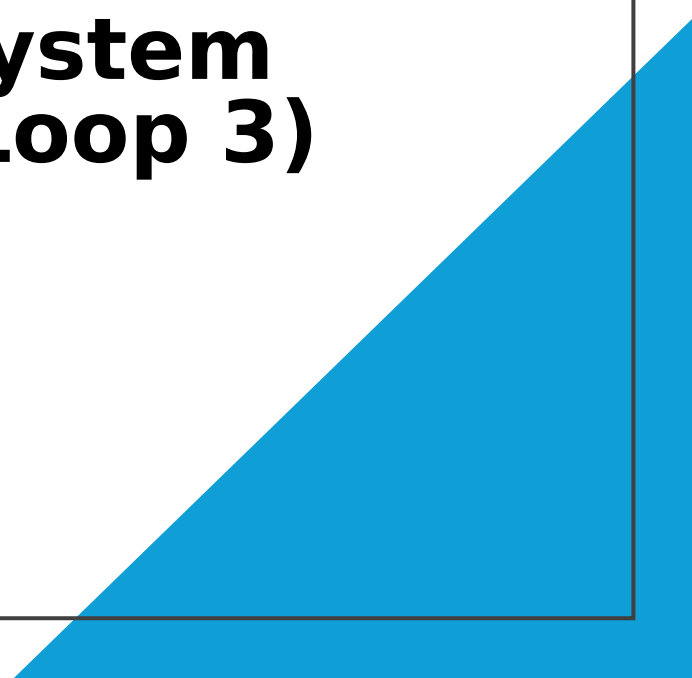
		INITIAL VISIT	EVERY FOLLOW-UP VISIT	ANNUAL VISIT
PHYSICAL EXAMINATION	▪ Height, weight, and BMI; growth/pubertal development in children and adolescents	✓	✓	✓
	▪ Blood pressure determination	✓	✓	✓
	▪ Orthostatic blood pressure measures (when indicated)	✓		
	▪ Fundoscopic examination (refer to eye specialist)	✓		✓
	▪ Thyroid palpation	✓		✓
	▪ Skin examination (e.g., acanthosis nigricans, insulin injection or insertion sites, lipodystrophy)	✓	✓	✓
	▪ Comprehensive foot examination	✓		✓
	• Visual inspection (e.g., skin integrity, callous formation, foot deformity or ulcer, toenails)**	✓	✓	✓
	• Screen for PAD (pedal pulses—refer for ABI if diminished)	✓		✓
	• Determination of temperature, vibration or pinprick sensation, and 10-g monofilament exam	✓		✓
	▪ Screen for depression, anxiety, diabetes distress, fear of hypoglycemia, and disordered eating	✓		✓
	▪ Consider assessment for cognitive performance*	✓		✓
	▪ Consider assessment for functional performance*	✓		✓
	▪ Consider assessment for bone pain	✓		✓
LABORATORY EVALUATION	▪ A1C, if the results are not available within the past 3 months	✓	✓	✓
	▪ If not performed/available within the past year	✓		✓
	• Lipid profile, including total, LDL, and HDL cholesterol and triglycerides#	✓		✓
	• Liver function tests#	✓		✓
	• Spot urinary albumin-to-creatinine ratio	✓		✓
	• Serum creatinine and estimated glomerular filtration rate ⁺	✓		✓
	• Thyroid-stimulating hormone in people with type 1 diabetes#	✓		✓
	• Vitamin B12 if on metformin	✓		✓
	• Complete blood count (CBC) with platelets	✓		✓
	• Serum potassium levels in people with diabetes on ACE inhibitors, ARBs, or diuretics ⁺	✓		✓
	• Calcium, vitamin D, and phosphorous for appropriate people with diabetes	✓		✓

Diabetes Care Reform: Complication Referral System (Loop 3)



- Kriteria terkontrol:
- HbA1c < 7%, GDP 80-130 mg/dL, GD2PP < 180 mg/dL
- Pasien stabil: pasien yang datang ke rawat jalan FKTP, bukan kasus emergency
- Pasien tidak stabil: Pasien datang dengan kondisi akut diabetes seperti koma diabetikum, KAD, HHS

Diabetes Care Reform: Complication Referral System (Loop 3)



Diabetes Care Reform: Screening and Case Finding

- 1. Rujukan Posyandu/Klinik
- 2. Incidental finding
 - By Risk
 - By Glucose Profile
- 3. Loss to Follow up DM
- 4. Gestational History
- 5. Prediabetes Follow up

Assessment

SES + Demo Approach

Risk Approach

Complication Approach

Low Risk Individual

High Risk Individual

Men, Informal Sector, Young, Missing Middle

Familial History

BMI Control

Glycemic Control

BP Control

Cholestrol Control

Smoking Control

Selection of Care Location

Kontrol Pertama

Microvascular

Retinopathy, Neuropathy and Nephropathy

Macrovascular

CVD, CKD, PAD, DF

Others Condition

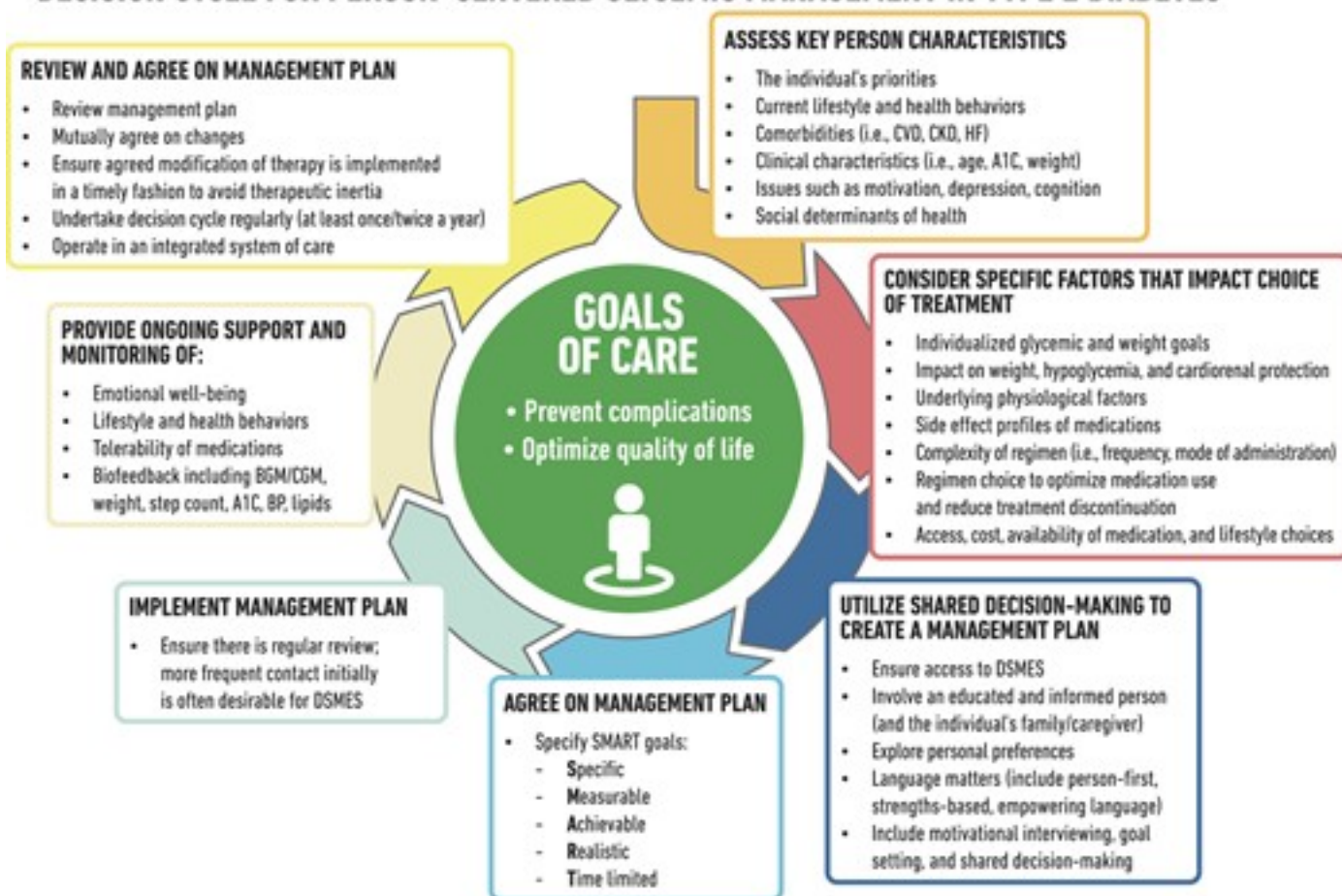
Disability, Mental Issue, TB/HIV.

Diabetes Care Reform: Clinical Pathway - Fase Intensif

Diabetes Care Reform: Clinical Pathway - Fase Kontrol

Diabetes Care Reform: Clinical Pathway - Cross Path

DECISION CYCLE FOR PERSON-CENTERED GLYCEMIC MANAGEMENT IN TYPE 2 DIABETES



		Visit Perdana	Visit Follow up	Visit rutin
	Riwayat Diabetes			
	Karakteristik pada saat onset (usia, simtom)	v		
	Evaluasi terapi dan respons sebelumnya	v		
	Evaluasi frekuensi/penyebab/keparahan dari MRS sebelum	v		
	Riwayat Keluarga			
	Riwayat keluarga diabetes	v		
	Riwayat keluarga kelainan autoimmune	v		
	Riwayat komplikasi dan komorbid			
	Komorbiditas umum (obesitas, OSA, NAFLD)	v		
	Darah tinggi atau lemak abnormal	v		
	Komplikasi mikrovaskular atau mikrovaskular	v		v
	Hipoglikemia : frekuensi/penyebab/timing episode	v		v
	Hemoglobinopathy atau anemia	v	v	v
	Kunjungan terakhir ke dokter gigi	v		v
	Kunjungan terakhir ke dokter mata			v
	Kunjungan ke spesialis			v
	Asesmen disabilitas dan penggunaan alat bantu	v	v	v
	Riwayat autoimmune personal	v		
	Riwayat Interval			
Riwayat medis dahulu dan Riwayat keluarga	Perubahan riwayat medis atau keluarga dari kunjungan terakhir		v	v
	Pola makan dan riwayat berat badan	v	v	v
	Kebiasaan menghitung karbohidrat (diabetes tipe1, diabetes tipe 2 diobati dengan insulin)			v
	Aktivitaas fisik dan kebiasaan tidur; skrining untuk sleep apnea obstruktif	v	v	v
Faktor perilaku	Penggunaan rokok, alkohol atau napza	v		v

Medikasi dan vaksinasi	Program pengobatan sekarang	v	v	v
	Perilaku penggunaan obat, termasuk penghematan obat atau alat medis	v	v	v
	Intoleransi obat atau efek samping	v	v	v
	Penggunaan obat komplemen dan obat alternatif	v	v	v
	Riwayat vaksinasi dan kebutuhan vaksinasi	v		v
Penggunaan teknologi	Penggunaan alat kesehatan, materi edukasi online, portal pasien, dst	v		v
	Monitoring glukosa, hasil dan penggunaan data	v	v	v
	Evaluasi aturan dan penggunaan dari pompa insulin, termasuk data pen dan glukosa	v	v	v
Asesmen kehidupan sosial	Social network			
	Identifikasi dukungan sosial yang ada	v		v
	Identifikasi wakil pembuat keputusan, untuk perawatan lanjutan	v		v
	Identifikasi determinan sosial dari kesehatan (stabilitas rumah & T4, akses transportasi, keamanan finansial, keamanan komunitas, keamanan akses makanan)	v		v
	Asesmen kebiasaan dan lingkungan sehari - hari, termasuk jadwal sekolah/pekerjaan dan kemampuan untuk mengelola diabetes secara mandiri	v	v	v

	Tinggi badan, berat badan, BMI; tumbuh kembang/perkembangan puber pada anak dan remaja	v	v	v
	Pengukuran tekanan darah	v	v	v
	Pengukuran tekanan darah orthostatic	v		
	Pemeriksaan funduskopi (ke spesialis mata)	v		v
	palpasi tiroid	v		v
	Pemeriksaan kulit (acanthosis nigricans, lokasi injeksi insulin, lipodistrofi)	v	v	v
	Pemeriksaan kaki komprehensif	v		v
	-Asesmen visual (keutuhan barier kulit, pembentukan kalus, deformitas kaki atau ulser atau kuku kaki)***	v	v	v
	-Skrining untuk PAD (palpasi pulsasi arteri kaki, periksakan ABI jika berkurang)	v		v
	-Determinasi sensasi suhu, getar, dan tusuk serta 10-g monofilament exam	v		v
	Skrining depresi, ansietas, distres diabetes, ketakutan hipoglikemia, dan gangguan makan	v		v
	Pertimbangkan asesmen kognitif (usia >65)	v		v
	Pertimbangkan asesmen fungsional (usia >65)	v		v
Pemeriksaan Fisik	Pertimbangkan asesmen nyeri tulang	v		v

Evaluasi Laboratori	Pemeriksaan HBA1C jika tidak ada hasil 3 bulan terakhir	v	v	v
	Pemeriksaan lab jika tidak dilakukan setahun terakhir :	v		v
	- Profil Lipid termasuk kolesterol total, LDL, HDL dan TG	v		v
	- Pemeriksaan fungsi liver	v		v
	- Pemeriksaan albumin creatinine ratio pada urine	v		v
	- Pemeriksaan serum kreatinin dan eGFR	v		v
	-Pemeriksaan TSH pada pasien dengan diabetes tipe 1	v		v
	- Pemeriksaan Vitamin B12 jika menggunakan metformin	v		v
	- Pemeriksaan darah lengkap dengan trombosit	v		v
	- Pemeriksaan serum Kalium pada pasien diabetes dengan obat ACE Inhibitor, ARB atau diuretik	v		v
	- Pemeriksaan Kalsium, Vitamin D dan fosfor pada pasien diabetes yang sesuai	v		v

Diabetes Care Reform: Amenable Care - Health System Approach

