



Guidelines for Monitoring Clients on Atypical Antipsychotics and Management of Metabolic Effects

Guideline History

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Guidelines for Monitoring Clients on Atypical Antipsychotics and Management of Metabolic Effects

Use of atypical antipsychotic medications is associated with a different range of side effects from those typically associated with conventional antipsychotics. Although atypical antipsychotic agents may cause fewer extrapyramidal side effects, concerns about their use center on diabetes and elevated glucose levels, hyperlipidemia, and weight gain. The protocols (Table 1) for monitoring metabolic effects on clients who receive atypical antipsychotic agents (second generation antipsychotics) are:

Table 1

Monitoring protocols for Metabolic Complications	Short-term				Long-term	
	Baseline	4 wk	8 wk	12 wk	Quarterly	Annually
Personal/Family History	X					X
Weight (BMI)	X	X	X	X	X	
Waist circumference**	X					X
Blood Pressure	X			X		X
Fasting Plasma Glucose	X			X		X
Fasting Lipid Profile	X			X		X
*More-frequent assessments may be warranted, based on clinical status.						
**Unless clinically contraindicated						
Billing code for lab work for high-risk medication: V67.51						

Increases or abnormalities in plasma glucose or lipids may be secondary to the atypical antipsychotic and clients should be referred to the appropriate health professional when indicated by these changes. Evidence of weight gain should initiate meaningful dietary intervention and recommendations to increase physical activity level. Consider switching atypical antipsychotics in clients who gain significant body weight at any time during therapy and cross titrate to avoid abrupt discontinuation of the agent associated with weight gain. Consider switching clients who develop worsening glycemia or dyslipidemia to an agent that has not been associated with significant weight gain or diabetes. (Table 2)

Table 2

Second Generation Antipsychotics and Relative Adverse Side Effects			
Drug	Weight Gain	Risk for Diabetes	Risk for Dyslipidemias
Clozapine (Clozaril)	+++	+	+
Olanzapine (Zyprexa)	+++	+	+
Risperidone (Resperidal)	++	D	D
Quetiapine(Seroquel)	++	D	D
Aripiprazole * (Abilify)	+/-	-	-
Ziprasidone* (Geodon)	+/-	-	-
+ = Increased effect	- = No Effect	D = Discrepant Results	* Newer drugs with limited long-term data

These Guidelines are promulgated by Sentara Healthcare (SHC) as recommendations for the clinical management of specific conditions. Clinical data in a particular case may necessitate or permit deviation from these Guidelines. The SHC Guidelines are institutionally endorsed recommendations and are not intended as a substitute for clinical judgment.



Metabolic Tracking Sheet for Patients on Atypical Antipsychotics (Second Generation Antipsychotics)

Attachment 1

	Name: _____ MR#: _____										
Metabolic Effects at Baseline? Y <input type="checkbox"/> N <input type="checkbox"/>	Baseline	4 Weeks	8 Weeks	12 Weeks	Quarterly	Quarterly	Annual	Quarterly	Quarterly	Quarterly	Annual
	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
Height											
Weight (Baseline & Every 6 months after initiating medication)											
BMI (Body Mass Index)											
Waist Circumference (Measure @ umbilicus)											
Blood Pressure											
Lipid Panel											
Total Cholesterol											
HDL											
LDL											
Triglycerides											
Fasting Plasma Glucose											
≥ 3 Criteria for identification of Metabolic Syndrome											
Abdominal Circumference	Men: >40in		Women: >35 in								
Blood Pressure (BP)	≥ 130/85										
Fasting Blood Glucose	≥ 110 mg/dl										
High Density Lipoprotein (HDL)	Men: < 40		Women: < 50								
Triglycerides	≥ 150mg/dl										
					Notes:						

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Waist Circumference References as Predictors for Cardiovascular Risk Factors

Waist Circumferences as Predictors for Cardiovascular Risk Factors

Abdominal Circumference

Men: > 40in

Women: > 35 in

Calculation of BMI

BMI is calculated the same way for both adults and children. The calculation is based on the following formulas:

Measurement Units	Formula and Calculation
(Metric Formula) Kilograms and meters (or centimeters)	Formula: weight (kg) / [height (m)]² With the metric system, the formula for BMI is weight in kilograms divided by height in meters squared. Since height is commonly measured in centimeters, divide height in centimeters by 100 to obtain height in meters.
(English Formula) Pounds and inches	Formula: weight (lb) / [height (in)]² x 703 Calculate BMI by dividing weight in pounds (lbs) by height in inches (in) squared and multiplying by a conversion factor of 703.

BMI-for-Age: Recommended Cut-Off Values

Percentile Cut-Off Values

Overweight $\geq 95\%$

At Risk for Overweight $\geq 85\%$ and $\leq 95\%$

(To interpret BMI Calculation for Children, Use the attachments 2 & 3 to plot BMI and age to determine percentile.)

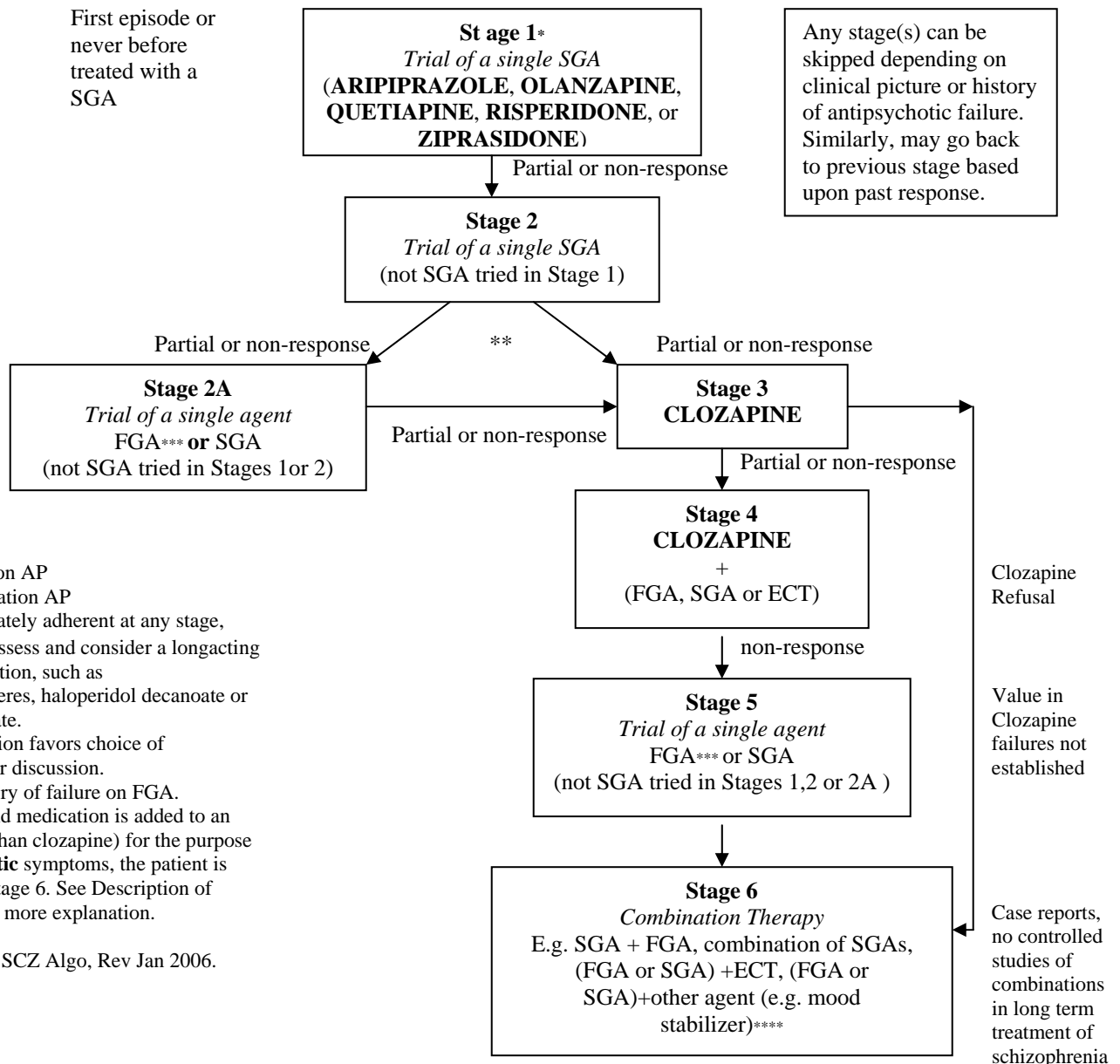
Management of Metabolic Effects

Management of metabolic side effects should include:

1. RISK FACTORS: Lifestyle Modification:

1. Weight: Early intervention is recommended if there is a significant weight gain ($\geq 5\%$ of total body weight) or severely obese. Consider weight management program.
2. Diet: Low/Reduced Fat diet, Referral to dietician or nutritionist
3. Exercise: Monitor abdominal girth
4. Smoking Cessation

2. MEDICATIONS: Consideration of a switch to a lower risk Atypical Antipsychotic. Any stage(s) can be skipped depending on the clinical picture or history of antipsychotic failures.



3. DIABETES:

- See Optima Health Clinical Guidelines for Diabetes Management and Referral Guidelines

4. HYPERLIPIDEMIA:


- See Optima Health Clinical Guidelines for Lipid Management in Adults, Lipid Screenings for Adults, & Lipid Screenings for Children and Adolescents.

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Sentara Reference Laboratories

<p>CHESAPEAKE</p> <p>Greenbrier Healthplex Sentara Patient Service Center 713 Volvo Parkway Chesapeake, VA 23320 (757) 282-4010 Wed. & Fri.: 7 a.m. – 5:30 p.m. Mon., Tues. and Thurs.: 7 a.m. – 7 p.m. Saturday: 8 a.m. - 12:00 p.m.</p>	<p>FRANKLIN</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>Lakeview Medical Center 1301 Armory Drive Franklin, VA 23851 (757) 562-0085 Ext. 8223 Mon., Wed. & Thurs: 8 a.m. – 4 p.m.</p> </div> <div style="width: 48%;"> <p>Southhampton Memorial Hospital 100 Fairview Drive Franklin, VA 23851 (757) 569-6193 M-F, 7 a.m. – 6 p.m. Closed Holidays</p> </div> </div>	
<p>NORFOLK</p> <p>Sentara Leigh Hospital Central Testing 830 Kempsville Rd. Norfolk, VA 23502 (757) 466-6710 M-F, 7 a.m. – 6 p.m. Sat., 8 a.m. – 12 noon</p>	<p>Sentara Norfolk General Outpatient Diagnostic Center River Pavilion 600 Gresham Dr. Norfolk, VA 23507 (757) 388-3962 M-F, 6:30 a.m. – 6:30 p.m. Closed Weekends.</p>	<p>Maureen Chevalier-Seawell, M.D., P.C. 801 W Little Creek Road Suite 104 Norfolk, VA 23505 Phone: 757/423-6000 Mon., Tues., Thurs.& Friday 8:00 a.m. – 11:00 a.m.</p> <p>Wainwright Lab (SMG) 229 W. Bute St., Suite 600 Norfolk, VA 23510 (757) 668-1106 M-F, 8 a.m. – 5:30 p.m.</p>
<p>PORTSMOUTH</p> <p>Sentara Patient Service Center 3737 High Street Portsmouth, VA 23707 757/673-5611 Monday – Friday 8:00 a.m. - 4:30 p.m.</p>	<p>SUFFOLK</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>Lakeview Medical Center Laboratory 2000 Meade Parkway Suffolk, VA 23434 (757) 934-9312 M-F, 7:30 a.m. – 6 p.m. Sat., 8:30 a.m. – 12 noon</p> <p>Lakeview Medical Center 4868 Bridge Rd. Suffolk, VA 23435 (757) 483-7900 Ext. 7106 M-F, 8 a.m. – 5 p.m.</p> </div> <div style="width: 48%;"> <p>Obici Hospital Outpatient Laboratory 2800 Godwin Blvd. Suffolk, VA 23435 (757) 934-4725 M-F, 7 a.m. – 4 p.m.</p> </div> </div>	
<p>VIRGINIA BEACH</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Sentara Bayside Hospital Outpatient Center 800 Independence Blvd. Virginia Beach, VA 23455 (757) 363-6500 M-F, 7 a.m. – 6:00 p.m. Sat., 8 a.m. – 12 noon</p> <p>Little Neck Medical Associates (SMG) 2859 Virginia Beach Blvd. Virginia Beach, VA 23452 (757) 340-4901 M-F, 8 a.m. – 8 p.m. Sat., Sun. & Holidays 10 a.m. – 4 p.m.</p> </div> <div style="width: 30%;"> <p>Sentara Virginia Beach General Hospital Outpatient Diagnostic Center 1060 First Colonial Rd. Virginia Beach, VA 23454 (757) 395-8840 M-F, 6:30 a.m. – 6 p.m. Sat., 8 a.m. – 12 Noon</p> </div> <div style="width: 30%;"> <p>Family Practice Spec. & Urgent Care (SMG) 816 Independence Blvd. Suite 100 Virginia Beach, VA 23455 (757) 363-6800 M-F, 7:30 a.m. – 8 p.m. Sat., Sun. & Holidays 10 a.m. – 4 p.m.</p> <p>Sentara Princess Anne Health Campus 1975 Glenn Mitchell Dr. Virginia Beach, VA 23456 (757) 507-0078 M-F, 7 a.m. - 5:30 p.m.</p> </div> </div>		
<p>PENINSULA</p> <p>Sentara CarePlex Hospital 3000 Coliseum Drive Hampton, VA 23666 (757) 736-1901 M-F, 6:30 a.m. – 6 p.m. Sat., 8 a.m. – 12 p.m.</p> <p>Mary Immaculate Hospital Outpatient Diagnostics 2 Bernadine Dr. Newport News, VA 23602 (757) 886-6414 M-F, 7 a.m. – 5:30 p.m. Sat., Sun. & Holidays: 7 a.m. – 5:30 p.m.</p>	<p>Port Warwick II 1031 Loftis Blvd. Newport News, VA 23606 (757) 736-9796 M-F, 7:00 a.m. – 5:00 p.m.</p>	<p>J. Clyde Morris Medical Associates (SMG) Sentara Urgent Care 747 J. Clyde Morris Blvd. Newport News, VA 23601 (757) 599-6117 M-F, 8 a.m. – 8 p.m. Sat., 8 a.m. – 4 p.m. Sun. & Holidays, 10 a.m. – 4 p.m.</p>
<p>WILLIAMSBURG</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>Sentara Williamsburg Regional Medical Center 100 Sentara Way Williamsburg, VA 23188 (757) 984-7944 M-F, 7 a.m. – 5:30 p.m.</p> </div> <div style="width: 48%;"> <p>Treyburn Diagnostics 3901 Treyburn Drive Williamsburg, VA (757) 259-6445 M-F, 7:00 a.m. – 12:30 p.m.</p> </div> </div>		

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BMI Body Mass Index

Body Mass Index is a formula used to evaluate a person's weight relative to height. It is a useful tool to estimate the amount of body fat in most people. The formula is weight in kilograms divided by height in meters squared. (kg/m²)

Body Mass Index Table (for adults only)											Weight (in pounds)																						
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	195	200	205	210	214	219	224	229	233	238	
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	213	218	223	228	233	238	243	248	
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	214	219	224	229	234	239	244	250	255	
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	207	212	217	222	228	233	238	244	249	254	260	265	
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	212	217	223	228	234	239	245	250	255	261	266	272	
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	226	231	237	243	248	254	260	265	271	277	282	
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	228	234	240	246	252	258	264	269	275	281	287	293	
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	243	249	255	261	268	274	280	286	292	299	305	311	
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	248	255	261	268	274	280	287	293	299	306	312	319	
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	246	249	257	264	271	277	284	290	297	304	310	317	323	330	
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	246	250	257	264	272	279	286	293	300	307	314	321	328	335	342	349
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	246	250	257	264	272	279	286	293	300	307	314	321	328	335	342	349	
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	246	250	257	265	272	279	286	293	300	307	314	321	329	336	343	350	357	
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	288	295	303	313	317	325	332	340	347	354	362	369	
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	294	302	309	317	324	332	340	347	355	362	370	377	
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	304	312	319	327	335	343	351	358	366	374	382	390	
75	152	160	168	176	184	195	200	208	216	224	232	240	248	256	264	272	279	287	295	303	310	318	326	334	342	350	358	366	374	382	390	398	
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	337	345	353	361	370	378	386	394	402	411	
BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	

According to the National Institutes of Health, Clinical Guidelines on Obesity:

BMI values less than 18.5 are considered underweight.
BMI values from 18.5 to 24.9 are classified as normal.
Overweight is defined as a body mass index of 25.0 to less than 30.0.
Obesity is defined as a BMI of 30.0 or greater, or about 30 pounds overweight.
Extreme obesity is defined as a BMI of 40 or greater.

Your BMI is _____

Reference: Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, 1998

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