

Tool for Monitoring Antipsychotic Side Effects (TMAS)

Person's Name: _____

WHY MONITOR? Schizophrenia^{8, 34} and use of antipsychotics^{13, 19, 26, 32, 33, 36} are independently associated with increased motor and metabolic abnormalities, which can contribute to non-adherence to medication, and increased morbidity and mortality^{6, 15, 18, 22, 27, 38, 39, 41, 42}.
MINIMUM MONITORING FREQUENCY: For newly initiated medication: baseline, 1 (motor side effects only), 3 and 12 months. For persons on the same medication > 1 year: q 12 months.

A. MOTOR SIDE EFFECTS

Medical History		<input type="checkbox"/> No relevant motor/neurological history		<input type="checkbox"/> Motor/neurological disorders	
Details:					
Family History in First Degree Relative		<input type="checkbox"/> No relevant motor/neurological history		<input type="checkbox"/> Motor/neurological disorders	
Details:					
Assessment Date (dd/mm/yy)					
Assessment Completed By:					
Current Medication(s)					
SUBJECTIVE EXPERIENCE (≤ 1 week)	SCORE: 0 = NONE 1 = QUESTIONABLE 2 = MILD 3 = MODERATE 4 = SEVERE				
	Score	Score	Score	Score	Score
Parkinsonism					
Dyskinesia					
Akathisia					
Dystonia					
PARKINSONISM Score right/left sides as indicated	SCORE: 0 = NONE 1 = QUESTIONABLE 2 = MILD 3 = MODERATE 4 = SEVERE				
	Score	Score	Score	Score	Score
Facial expression – reduced					
Hands – tremor (resting)	R	R	R	R	R
	L	L	L	L	L
Hands – tremor (with arms extended, fingers apart)	R	R	R	R	R
	L	L	L	L	L
Hands – bradykinesia	R	R	R	R	R
	L	L	L	L	L
Elbow – rigidity	R	R	R	R	R
	L	L	L	L	L
Gait – abnormality					
DYSKINESIA Score right/left sides as indicated	SCORE: 0 = NONE 1 = QUESTIONABLE 2 = MILD 3 = MODERATE 4 = SEVERE				
	Score	Score	Score	Score	Score
Face and mouth – <i>with activation</i>					
Tongue – <i>with activation</i>					
Upper extremities – arms, hands	R	R	R	R	R
	L	L	L	L	L
Trunk – neck, shoulders, hips					
Lower extremities – ankles/toes	R	R	R	R	R
	L	L	L	L	L
AKATHISIA	SCORE: 0 = NONE 1 = QUESTIONABLE 2 = MILD 3 = MODERATE 4 = SEVERE				
	Score	Score	Score	Score	Score
Observed motor restlessness					
DYSTONIA	SCORE: 0 = NONE 1 = QUESTIONABLE 2 = MILD 3 = MODERATE 4 = SEVERE				
	Score	Score	Score	Score	Score
Observed dystonia					
Details – name affected body part (e.g. head, extremities, trunk):					

B. ISSUE/ACTION/OUTCOME

DATE	ISSUE	ACTION	OUTCOME

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C. METABOLIC SIDE EFFECTS

Baseline Medical History Date: _____ Weight: _____ Height: _____ BMI $\left(\frac{\text{Weight [kg]}}{\text{Height [m]}^2}\right) =$ _____

No relevant metabolic history
 Cardiovascular
 Dyslipidemia
 Diabetes
 Hypertension
 Obesity (BMI>30)⁷
 Smoker
 Sedentary lifestyle (< 30 min exercise at least 4 days/week)⁴⁰

Details: _____

Family History in First Degree Relative No relevant metabolic history

Cardiovascular (< age 60)
 Hypertension
 Dyslipidemia
 Diabetes
 Obesity

Details: _____

Assessment Date (dd/mm/yy) _____

Assessment Completed By: _____

Date Requisition Provided
(*if applicable) _____

Date Blood Work Completed
(*if applicable) _____

Current Medication(s) _____

Risk Factor	Abnormal Level	Test Results	Test Results	Test Results	Test Results	Test Results	Test Results
Weight kgs/lbs	≥ 5% increase from baseline (i.e. = _____ kgs/lbs)	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result
Waist circumference ^{7†} cm (inches)	M > 102 (40) F > 88 (35)	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result
Blood pressure ³⁵ mmHg	> 140/90 or > 130/80 if diabetic	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result
Triglycerides ^{3*} mmol/L	> 1.7	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result
Fasting glucose ^{3*} mmol/L	> 5.6	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result
HDL cholesterol ^{3*} mmol/L	M ≤ 1.03 F ≤ 1.30	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result
LDL cholesterol ^{4*} mmol/L	≥ 5.0	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result
Hemoglobin A1c (as indicated)* %	< 6.0 normal < 7.0 for most diabetic persons	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result	<input type="checkbox"/> Abnormal result

†N.B.: The Canadian Diabetes Association provides gender and ethnicity based guidelines for waist circumference

D. OTHER SIDE EFFECTS

DATE	SIDE EFFECT NOTED (e.g. GI, sedation, sexual, etc.)	DATE	SIDE EFFECT NOTED (e.g. GI, sedation, sexual, etc.)

E. ISSUE/ACTION/OUTCOME

DATE	ISSUE	ACTION	OUTCOME

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F. EXAMINATION PROCEDURE

ALL “hands on” aspects of the examination should be done with passive movement of the person’s respective body part.

SCORING PROCEDURE: Where uncertainty exists about the severity level of a side effect (e.g. questionable v. mild), record the higher of the two scores.

RATIONALE: A purpose of the TMAS is to identify potentially troubling side effects, allowing for earlier intervention and treatment, as appropriate.

PARKINSONISM	<i>Consists of motor disturbances, which include: tremor, impaired gait/posture, postural instability, rigidity, reduced facial expression/speech, and bradykinesia.</i>	
Facial expression - reduced	Observe the person’s face for reduced facial expression, decreased blinking or parted lips.	
Hands – tremor (resting)	Observe the person’s hands for a resting tremor, with the person sitting with their elbows resting on their thighs and their hands hanging over their knees.	
Hands – tremor (with arms extended, fingers apart)	Observe the person’s hands for a tremor, with their palms facing down and arms fully extended with fingers apart.	
Hands – bradykinesia	Ask the person to fully open and close their hands, one at a time, in rapid succession, observing for bradykinesia.	
Elbow – rigidity	Flex and extend the person’s arms, one at a time, with your thumb on their bicep tendon, noting rigidity (“cog-wheel” or “lead pipe”).	
Gait – abnormality	Observe the person’s gait either entering or exiting the room. Note evidence of stooped posture, shuffling gait, decreased arm swing or bradykinesia.	
DYSKINESIA	<i>Characterized by movements that are repetitive, purposeless, and involuntary.</i>	
Muscles of face and mouth – with activation	While engaging the person in an activation activity (e.g. finger tapping), observe the person’s face and mouth, noting any frowning, blinking, grimacing, puckering, repetitive opening and closing of the mouth, clenching of the jaw or lateral movements of the jaw.	
Tongue – with activation	While engaging the person in an activation activity (e.g. finger tapping), with the person’s mouth open, observe for in and out or lateral movements of the tongue.	
Upper extremities – arms, hands	While the person is sitting in a chair, face the patient to observe for evidence of dyskinesias of the: <ol style="list-style-type: none"> Arms and hands. Do NOT include tremor. Ankles and/or toes (including inversion/eversion of the foot). Neck, shoulders, hips (including rocking, twisting, squirming). 	
Trunk – neck, shoulders, hips		
Lower extremities – ankles/toes		
AKATHISIA	<i>Consists of subjective feelings of inner restlessness with the urge to move, and/or objective movements such as restless movement of one extremity, changing position, rocking while standing or sitting, lifting feet as if marching on the spot, and inability to sit down for long periods with pacing back and forth.</i>	
Observed motor restlessness – lower limbs	The person should be observed (while seated) for a minimum of 5 minutes. A “severe” score should be reserved for persons who are unable to remain seated for the entire 5 minute time period, due to akathisia.	
DYSTONIA	<i>Characterized by muscles which are contracted, contorted and often painful, sometimes accompanied by repetitive jerking or twisting movements, resulting in the person’s assuming abnormal postures.</i>	
Observed dystonia – head, upper and lower extremities, trunk	The person’s entire head, neck, limbs and trunk should be observed while sitting or standing. The details of observed dystonias should be recorded.	
SUBJECTIVE EXPERIENCE		
Screen	Ask the person: “During the last week, have you...” <ol style="list-style-type: none"> noticed any shakes, muscle stiffness, or problems walking? (PARKINSONISM) noticed any abnormal body movements? (DYSKINESIA) felt restless or had the need to move even when you didn’t want to? (AKATHISIA) experienced any muscle spasms that lasted at least 1 minute? (DYSTONIA) If yes, explore and record the pertinent details.	
WAIST CIRCUMFERENCE	<i>To determine waist circumference (WC), the measurer should stand beside the individual. WC is measured at the part of the torso located midway between the lowest rib and the iliac crest (top of pelvic bone). After the measurer locates and places the tip of the measuring tape at the landmark site, (1) ask the person to hold the tip of the tape in place and rotate 360 degrees while the measurer holds the remaining tape, ensuring that the tape measure is parallel to the floor and not twisted. (2) The measurer will then record the WC, after insuring that the tape is snug but not compressing any underlying soft tissue.</i>	
Gender and ethnic specific waist circumferences	The Canadian Diabetes Association 2013 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada provides a guideline for waist circumference targets based on gender and ethnicity. A table summarizing waist circumference measurements that lead to increased health risks is below.	
Ethnic-Specific Values for Waist Circumference (WC)		
Country or Ethnic Group	Central Obesity as Defined by WC	
	Men – cm (inches)	Women – cm (inches)
European, Sub-Saharan African, Eastern Mediterranean and Middle Eastern (Arab)	94 (37.6) or greater	80 (32) or greater
South Asian, Chinese, Japanese, South and Central American	90 (36) or greater	80 (32) or greater

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G. REFERENCES

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