# 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** | ☐ No relevant motor/neurological history ☐ Motor/neurological disorders | | | | | |
| Details: | | | | | | |
| **Family History in First Degree Relative** | ☐ No relevant motor/neurological history ☐ 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** | **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** | **Score** |
| Facial expression – reduced | | | | | | |
| Hands – tremor (resting) | *R* | *R* | *R* | *R* | *R* | *R* |
| | *L* | *L* | *L* | *L* | *L* | *L* |
| Hands – tremor (with arms extended, fingers apart) | *R* | *R* | *R* | *R* | *R* | *R* |
| | *L* | *L* | *L* | *L* | *L* | *L* |
| Hands – bradykinesia | *R* | *R* | *R* | *R* | *R* | *R* |
| | *L* | *L* | *L* | *L* | *L* | *L* |
| Elbow – rigidity | *R* | *R* | *R* | *R* | *R* | *R* |
| | *L* | *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** | **Score** |
| Face and mouth – *with activation* | | | | | | |
| Tongue – *with activation* | | | | | | |
| Upper extremities – arms, hands | *R* | *R* | *R* | *R* | *R* | *R* |
| | *L* | *L* | *L* | *L* | *L* | *L* |
| Trunk – neck, shoulders, hips | | | | | | |
| Lower extremities – ankles/toes | *R* | *R* | *R* | *R* | *R* | *R* |
| | *L* | *L* | *L* | *L* | *L* | *L* |
| **AKATHISIA** | ***SCORE:*** *0 = NONE 1 = QUESTIONABLE 2 = MILD 3 = MODERATE 4 = SEVERE* | | | | | |
| | **Score** | **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** | **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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**Person's Name:**

## C. METABOLIC SIDE EFFECTS

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

☐ 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) | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result |
| Waist circumference[7†] *cm (inches)* | M >102 (40) F > 88 (35) | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result |
| Blood pressure[35] *mmHg* | > 140/90 *or* > 130/80 if diabetic | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result |
| Triglycerides[3*] *mmol/L* | > 1.7 | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result |
| Fasting glucose[3*] *mmol/L* | > 5.6 | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result |
| HDL cholesterol[3*] *mmol/L* | M ≤ 1.03 F ≤ 1.30 | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result |
| LDL cholesterol[4*] *mmol/L* | ≥ 5.0 | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result |
| Hemoglobin A1c (as indicated)* % | < 6.0 normal < 7.0 for most diabetic persons | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑Abnormal result | ❑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 |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

# Tool for Monitoring Antipsychotic Side Effects (TMAS)

## 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** | *Consists of motor disturbances, which include: tremor, impaired gait/posture, postural instability, rigidity, reduced facial expression/speech, and bradykinesis.* |
| 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** | *Characterized by movements that are repetitive, purposeless, and involuntary.* |
| 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<br>Trunk – neck, shoulders, hips<br>Lower extremities – ankles/toes | While the person is sitting in a chair, face the patient to observe for evidence of dyskinesias of the:<br>a) Arms and hands. Do NOT include tremor.<br>b) Ankles and/or toes (including inversion/eversion of the foot).<br>c) Neck, shoulders, hips (including rocking, twisting, squirming). |
| **AKATHISIA** | *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.* |
| 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** | *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.* |
| 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…"<br>a) noticed any shakes, muscle stiffness, or problems walking? (PARKINSONISM)<br>b) noticed any abnormal body movements? (DYSKINESIA)<br>c) felt restless or had the need to move even when you didn't want to? (AKATHISIA)<br>d) experienced any muscle spasms that lasted at least 1 minute? (DYSTONIA)<br>If yes, explore and record the pertinent details. |
| **WAIST CIRCUMFERENCE** | *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.* |
| 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)** | **Central Obesity as Defined by WC** | |
|---|---|---|
| **Country or Ethnic Group** | **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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