BSO-DOS©

Behavioural Supports Ontario-Dementia Observation System

RESOURCE MANUAL

Informing Person and Family-Centred Care through Objective and Measurable Direct Observation Documentation

May 2019

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Behavioural Supports Ontario
Soutien en cas de troubles du comportement en Ontario Soutien en cas de troubles du comportement en Ontario

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Cover Photo

The cover photo contains many of the colours found in the BSO-DOS©. It illustrates the diversity and interconnected expressions that are part of human behaviour. Although the BSO-DOS© places behaviours within categories, we recognize that individuals living with dementia are complex individuals, as we all are, interacting with the world around them and expressing themselves in many different ways.

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INTRODUCTION

History of the DOS

The Dementia Observation System (DOS) was first developed in the early 1990s at St. Peter's Hospital (SPH), a complex continuing care facility in Hamilton, Ontario. Members of the clinical teams at SPH recognized the need for a systematic documentation method to record and analyze occurrences of behavioural symptoms experienced by older people with dementia. To meet this demand they created the original DOS, then called the Q30 Minute Check Sheet. This tool became useful to track the presence, frequency, duration and risk level of behaviours often associated with dementia such as repetitive vocalization, sleep-wake pattern disruption, reluctance to bathe and physical expressions of anxiety and fear directed at others. It became apparent that the behavioural trends identified through reviewing the DOS could help the clinical team make decisions about the following: titrating effective medications to the lowest necessary dose, discontinuing ineffective or unnecessary medications, referring clients for assessment by external consultants, transferring clients to more appropriate care levels or safer environments, educating families and identifying the distinction between those behaviours of greatest risk and those behaviours that should be accommodated through application of non-pharmacological interventions.

In 1998, the Q30 Minute Check Sheet was introduced at Shalom Village Long-Term Care Home in Hamilton. The tool had originally been developed for the complex continuing care sector and it was hypothesized that it would also prove useful in the long-term care home sector. Soon after, a paper titled A Dementia Observation System: A Useful Tool in Discovering the Person Behind the Illness was published in the journal Long Term Care, describing the use of the Q30 Minute Check Sheet at Shalom Village. Subsequent to this, the tool became known as the DOS (Dementia Observation System) and has been included as a data collection tool in the P.I.E.C.E.S.™ program, since 1999.

Since its original publication and inclusion in the P.I.E.C.E.S.™ manual, the DOS has become widely used in its application in the dementia care context in Ontario and beyond. In recent years, a growing number of clinicians and educators expressed interest in updating the original DOS for currency and improve its use of person-centred language. Recognition of the need for revisions to the DOS resulted in an interprofessional partnership through the leadership and support of the Behavioural Supports Ontario (BSO) Provincial Coordinating Office. The BSO Knowledge Translation and Communications Advisory established a DOS Working Group (consisting of over 20 members representing multiple disciplines) in order to standardize the DOS; allowing for a common version to be used in a consistent format in clinical decision-making and for intervention outcome evaluation. As the DOS Working Group began the work of updating the DOS in early 2017, an environmental scan identified 48 versions in use (11 versions the same as the original, 27 with some modifications and 10 with significant modifications/innovations). This Resource Manual and the BSO-DOS©, is the outcome of the DOS Working Group's persistence, commitment and collaboration. It represents the convergence of the knowledge, expertise and ideas of many creative minds all intent on enhancing the quality of care provided to people living with dementia who experience responsive behaviours/personal expressions.

Purpose of the BSO-DOS©

Aligning with the value and importance of direct behaviour observation (Curyto, Van Haitsman, & Vriesma, 2008), the purpose of the BSO-DOS© is to provide objective, accurate data about a person's behaviour throughout each 24-hour cycle over a period of several consecutive days. The data can be used to identify patterns, trends, contributing factors and modifiable variables associated with responsive behaviours/personal expressions. This information is useful in the development and evaluation of tailored interventions to address unmet needs through activities, environments, approaches and/or medications. These individualized approaches are key to providing person and family-centred care.

The BSO-DOS© can be used to determine the baseline of behaviour for those individuals transitioning into a new environment (e.g. a Long-term Care Home) or for those clients (residents/patients) experiencing an acute change in behavioural profile. The BSO-DOS© ensures a common language is used between team members, organizations and sectors. It is an accessible method for recording behavioural observations such that all members of the care team can participate and directly contribute to better understanding the pattern of behaviours experienced by the person living with dementia.

As noted, the original DOS was created specifically to assist in the assessment and care of individuals living with dementia. Although not intended for other populations, clinical teams have found value in utilizing the DOS to identify behavioural patterns of individuals with delirium, mental illness and/or other neurological conditions.

Understanding Behaviour

To understand behaviour, the clinical team member must first recognize, empathize and identify the meaning that the behaviour may represent. Understanding behaviour also replaces subjective opinion with critical thinking about the possible causes of the behaviour. Understanding behaviour comes from analyzing the information recorded in the BSO-DOS©, and then discussing the findings together as a team. Missing information could lead to inaccurate conclusions. This is why it is so important to record your observations as accurately and completely as possible.

(Bromley, 1990; Curyto, Van Haitsman, & Vriesma, 2008; Van Haitsman, & Vriesma, 2008; Kitwood, 1997; McCormack & McCance, 2017; Gallagher-Thompson, Steffen, & Thompson, 2008; Noguchi, Kawano, & Yamanaka, 2013; Registered Nurses' Association of Ontario, 2016; Reuther, et al.,2012; Schindel Martin, 1998; Seitz, et al., 2012; Spector, Orrell & Goyder, 2013; Zeller, et al., 2009).

Complete information recorded in the BSO-DOS© contributes to answering the following clinical questions:

- What is the rhythm of the person's day? As you review the data, patterns that reveal a daily rhythm may emerge. Patterns related to sleep, positive engagement (or lack thereof) and the times of day when behaviours are typically expressed provide insights into the usual day of the individual. This can help the team tailor their approaches and timing of interventions.
- Is there something that stands out when you review the completed BSO-DOS©? Your clinical judgment may identify patterns that are unique to the person, leading to the development of tailored, person-centred interventions and/or the recognition of the need for pain and symptom management. In some cases, clinical judgment and team discussion with family members may result in a combination of non-pharmacological and medication treatments.
- Is this a new behaviour? Comparing new BSO-DOS© data with a baseline picture collected at an earlier time period such as admission, can help the team identify causes and/or contributing factors.

- Is there a clear pattern of behaviour change? Tracking behaviours through each 24-hour cycle will help identify when, where and for how long behaviours occur. This can help expedite treatment for situations that pose significant risk.
- Has an intervention (e.g. an activity, approach, medication) been effective? Completed tracking before and after interventions will help to quantify improvement and side effects.
- Is a specialized assessment required? The BSO-DOS© may identify risk and provide evidence that additional specialized supports and/or environment are needed to assist with further assessment and treatment. The 'picture' created from the BSO-DOS© will supplement your charting and assist a specialized resource/unit (e.g. Seniors' Mental Health, Behavioural Supports Ontario, Behavioural Supports Transition Unit and/or Tertiary Care Unit) with valuable information to support their understanding of the person and their current care needs.

Personhood

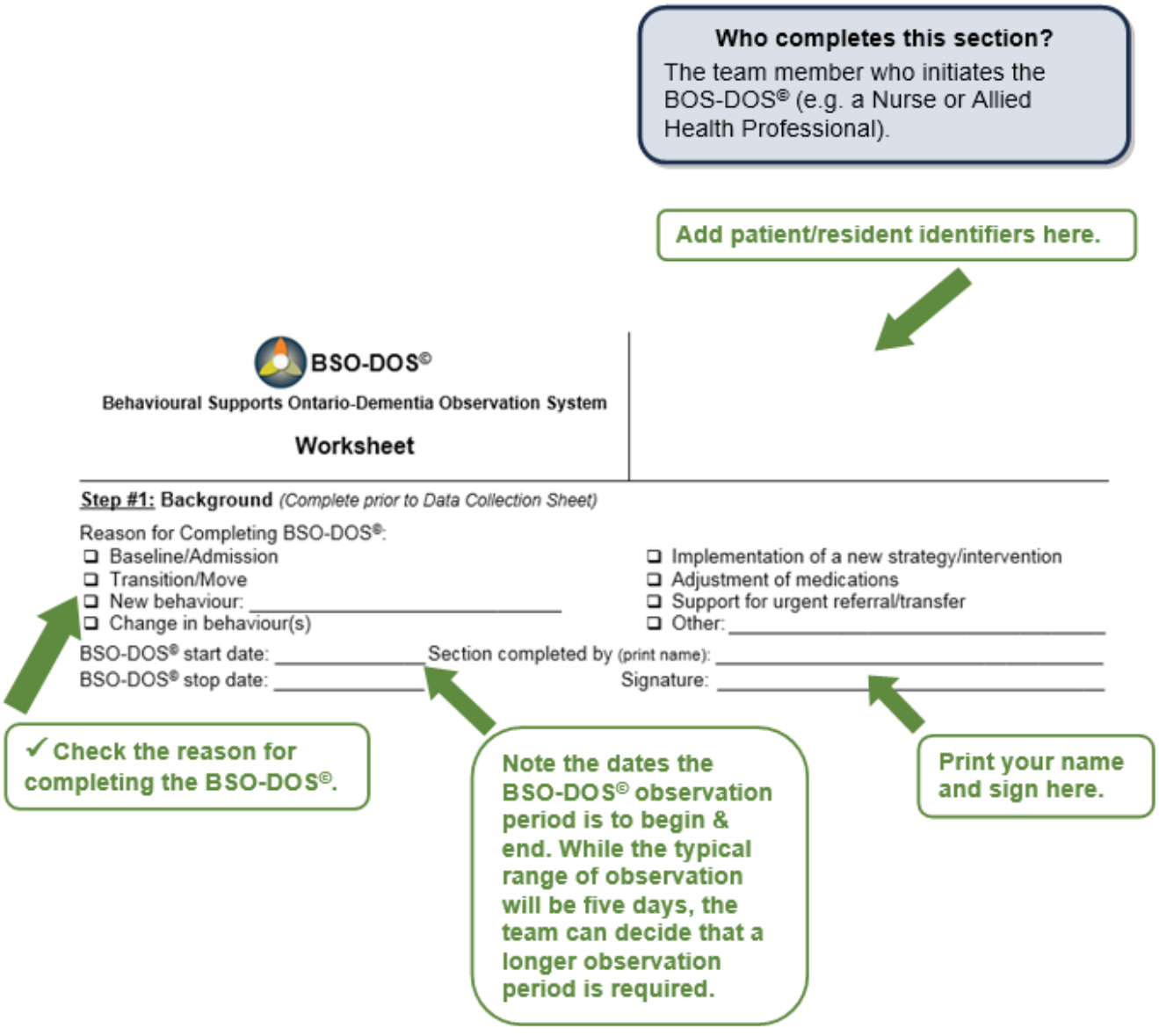
An essential part of providing person and family-centred care is knowing the individual as a unique person (RNAO, 2015). Therefore, as clinical teams work to find the meaning behind responsive behaviours, knowing the individual's history, likes, dislikes, interests and usual routines is critical. The term 'personhood' is often used to convey the information gathered/known about the person which ultimately leads to recognition, respect and trust that is given from one person to another within a caring relationship (Kitwood, 1997; McCormack & McCance, 2017). Behavioural Supports Ontario's 'Making Connections: Recommendations to Enhance the use of Personhood Tools to Improve Person-Centered Care Delivery Across Sectors' is an excellent resource to support the gathering of such information (click here to access). Interpretation of the BSO-DOS© data should be completed in the context of personhood information.

Completing the BSO-DOS©

Step #1: Background

This section provides a place for the individual initiating the BSO-DOS© to note the reason for completing the tool. This helps to communicate to the entire clinical team the rationale for the collection of direct behavioural observation data. The period of time that BSO-DOS© is to be initiated and stopped is also recorded, providing clear expectations to the team.

Completing the Background:



Step #2: Data Collection Sheet

The Data Collection Sheet is used by point-of-care team members to document information about the individual every 30 minutes over a five day observation period. Team members are asked to track all of the individual's behavioural patterns which would involve their sleep-wake cycle, when the individual is meaningfully engaged, as well as when the individual demonstrates responsive behaviours/personal expressions.

It remains important to chart what the individual is doing when awake, which may include being passive and observing his/her environment and/or when meaningfully engaged. There are also five broad categories which involve tracking different classes of responsive behaviours/personal expressions: vocal and motor expressions which are repetitive in nature, sexual expression of risk, verbal expression of risk, and physical expression of risk. In addition, point-of-care team members can customize and chart behaviours observed that are in the individual's repertoire and not captured in the generated list of broad categories of behaviour.

Under the observed behaviour category there is a list of specific behaviours. Only the number associated with the category is to be noted within the 'Observed Behaviour' column of the Data Collection Sheet. However, the specific behaviours can be checked off in the boxes provided when it is observed. This allows team members to reflect upon what specific behaviours were expressed over the five day period. Reviewing the selected boxes will assist teams to distinguish between those behaviours that represent risk, those that can be safely accommodated, and those that would benefit from further assessment.

Completing the Data Collection Sheet:

Step #2: Data Collection Sheet

Who completes this section?

Any point-of-care team members (e.g. Personal Support Workers, Nurses, Allied Health Professionals) who observe the patient/resident over the five day observation period.

Write the date (in order of day, month and year) for each of the five observation days.

Write the number(s) in each ½ hour time block associated with the behaviour category you observe (from the 'Observed Behaviours' legend).

Note any relevant context when the behaviour is observed in the context column using the letter(s) from the 'Context' legend. Note: This is not a mandatory column.

Sign your initials for each ½ hour time block you document.

	Observed Behaviour	Context	Initials*
D/M/Y	24/05/2019		
0700	1		CM
0730	2	A,Q	DF
0800	4,7,8	C,S	DF
0830	4,2		DF
0900	3	N	DF
0930	2	Q	DF
1000	3	F	DF
1030	5	A,L	

Context	
A	**A**lone
L	**L**oud/busy environment
Q	**Q**uiet environment
F	**F**amily/visitors present
C	Personal **C**are (e.g. bathing, incontinent care, toileting)
N	**N**utrition - eating/drinking
M	**M**edication for behaviours given
P	**P**ain medication given
T	**T**reatment (e.g. wound care, creams)
R	Expressions directed at **R**esident/patient/visitor(s)
S	Expressions directed at **S**taff
X	
Y	

If needed, add additional relevant context (that is not already listed in the context legend) as X or Y.

Check the specific behaviour(s) observed under the behaviour category in the 'Observed Behaviour' legend.

Before the BSO-DOS© is initiated, the clinical team may decide to track additional behaviours that are not captured in the legend. This can be noted in #9 or #10.

Observed Behaviours

1 Sleeping

2 Awake/Calm

3 Positively Engaged

For #3-8 check as you observe:

- ☐ Activity
- ☑ Conversing
- ☐ Hand holding
- ☐ Hugging
- ☐ Singing
- ☐ Smiling
- ☐ Other:

4 Vocal Expressions (Repetitive)

- ☐ Crying
- ☐ Grunting
- ☐ Humming
- ☐ Moaning
- ☐ Other:
- ☐ Questions
- ☐ Requests
- ☐ Sighing
- ☑ Words

5 Motor Expressions (Repetitive)

- ☐ Banging
- ☐ Collecting/Hoarding
- ☐ Disrobing
- ☑ Exploring/Searching
- ☑ Fidgeting
- ☐ Other:
- ☐ Grinding teeth
- ☑ Pacing
- ☐ Rattling
- ☐ Rocking
- ☐ Rummaging

6 Sexual Expression of Risk

- ☐ Explicit sexual comments
- ☐ Public masturbation
- ☐ Touching others - genitals
- ☐ Touching others - non-genitals
- ☐ Other:

7 Verbal Expression of Risk

- ☐ Insults
- ☑ Screaming
- ☐ Other:
- ☐ Swearing
- ☐ Threatening

8 Physical Expression of Risk

- ☐ Biting
- ☐ Choking others
- ☐ Grabbing
- ☐ Hair pulling
- ☐ Hitting
- ☐ Kicking
- ☐ Pinching
- ☐ Other:
- ☐ Punching
- ☐ Pushing
- ☑ Scratching
- ☐ Self-injurious
- ☑ Slapping
- ☐ Spitting
- ☐ Throwing

9

10

Observed Behaviours Definitions

1. Sleeping	The individual is located in bedroom positioned in bed or seated in a chair that is located anywhere in the environmental setting and is asleep. The individual is in a resting state with eyes closed and has rhythmic breathing; there is a decrease in bodily movement and responsiveness to external stimuli during this time.
2. Awake/Calm	The individual is awake, has a relaxed facial expression (e.g. relaxed forehead muscles, mouth is relatively still or may be smiling, has a relaxed gaze without staring) and relaxed body language (e.g. breathing is steady and slow, shoulders generally hang loosely down, and relaxed limbs hang loosely). Upon approach, the individual's voice sounds relaxed without an unusually high pitch or sudden changes in pitch/sound. The individual is sitting quietly or foot-propelling, or can be seen standing or walking with head down or up in the hallways in a calm manner with hands open. The individual is not involved or engaged in a particular activity. The individual is passive, and may be alone or in an area with others, with minimal stimulation or interaction observed. The individual is watching their surroundings or observing what is happening in the environment but is not an active participant.
3. Positively Engaged	While the individual is awake and calm, they may become engaged in meaningful and purposeful activity or interaction, whether done alone or with others. The individual demonstrates interest and/or has sustained attention, and is typically involved in pro-social exchanges or reciprocal interactions with other individuals. The quality of social contact can take many forms: face-to-face or one-to-one, family, peer conversations, telephone/video calls, animal/pet therapy, or group interactions. Tracking within this category at the baseline point is of critical importance: if an individual is ordinarily engaged, and this changes to longer periods of withdrawal or unusual quietness, this behaviour may indicate a need for assessment of potential depression or progression of cognitive impairment. The individual may be participating in structured or unstructured activity, engaging in conversation and/or expressing positive comments, holding another person's hand or hugging someone to demonstrate affection, partaking in singing with others, and smiling or greeting others when spoken to. In some cases, the individual may also greet others with whom they have relationships using a friendly kiss on the cheek or lips. If the team decides to track social kissing as an indicator of positive engagement, it can appear noted under 'other'.

3. Positively Engaged

The individual may also be engaged in solitary activities involving physical activity, sensory enhancement or relaxation, listening to music, watching a concert or immersed during doll therapy.

Activity: The individual is involved in a solitary or tabletop activity, on a one-to one basis or in a group participating in physical exercise, sensory enhancement or relaxation exercises (e.g. hand massage, art therapy, cooking, sensory room, and aromatherapy), music group, pet therapy, and other social events. Other activities for positive engagement include being provided with Snoezelen therapy/controlled multisensory stimulation, simulated presence therapy (audio or visual), Montessori-based activities, and the use of a tablet, MP3 player/ headphones or other technology aids.

Conversing: The individual is talking informally with another or others, and may be having an exchange of ideas or opinions. The individual is respectful and demonstrating sustained attention during the verbal interaction.

Hand holding: The individual is making physical contact with another person's hand(s) which is consensual and is demonstrating a sign or token of affection or admiration.

Hugging: The individual is making physical contact with another person with arms outstretched and touching the other person's upper body, which is consensual and an expression of affection and warmth.

Singing: The individual is producing musical sounds with the voice with or without the accompaniment of musical instruments.

Smiling: The individual demonstrates a facial expression in which the eyes brighten and the corners of the mouth curve slightly upward and which expresses pleasure, approval or amusement in response to something in the environment.

Examples for 'Other' Positively Engaged Behaviours:

Kissing: The individual's lips touch the cheek or lips of another person as a sign of a positive interaction that reflects belongingness in their social milieu, or to greet them or say goodbye. This behaviour is not intrusive towards the other person, and therefore should not appear under behavioural category #6 (Sexual Expressions of Risk).

Laughing: The individual expresses emotion with an audible, vocal expulsion of air from the lungs that can range from a loud burst of sound to a series of quiet chuckles and is usually accompanied by characteristic facial and bodily movements such as smiling and shining eyes.

Maintaining Eye Contact: The individual has their head up and is looking and/or following the movements of others, and is responding to questions and conversation they are having with others.

4. Vocal Expressions (Repetitive)

This includes verbal behaviour that is repetitive or perseverative in nature. The verbal behaviour involves the individual making vocalizations (e.g. repeats the same sound, syllable or word(s) one right after the other) and/or verbalizations (e.g. repeats the same sentence(s) one right after the other). The individual may demonstrate the verbal behaviour to convey feelings; or be goal-directed to obtain an unmet need, obtain or remove item(s), self-soothe, obtain access to sensory or body stimulation, acquire attention, seek information or obtain assistance. Although the individual has a raised voice, it is not directed towards others or threatening in nature, however, the team wants to track this type of vocal expression because it may indicate an individual is experiencing stress. The verbal behaviour may be perceived by others to be disturbing for staff and co-client(s), and can also be problematic for the individual making the vocal expression.

Crying: The individual produces tears from the eyes often while making loud sighs because of physical pain or discomfort, sorrow or other strong emotions that are being experienced.

Grunting: The individual makes a low, inarticulate sound - typically to express effort, anger or pain.

Humming: The individual makes a low continuous sound, often with a melody, while keeping the mouth opened or closed, forcing the sound to emerge from the nose.

Moaning: The individual makes a prolonged, low, inarticulate sound uttered from or as if from pain, unhappiness, or another strong emotion.

Questions: The individual uses an intelligible sentence (e.g. a group of words that is complete in itself) or phrase when asking another person for information or testing their knowledge about something.

Requests: The individual makes a statement to express a need, such as obtaining access to a person, activity or item and/or to escape/avoid a person, activity or have an item removed. (e.g. "Where is my car?", "Have you seen my husband?" or "You stop that!").

Sighing: The individual draws in and exhales audibly a long, deep breath when expressing an emotion or feeling such as weariness, despair or relief.

Words: The individual utters a combination of one or three words, repeating these words several times (e.g. "Hello, Hello, Hello" or "Oh no, oh no, oh no!").

Examples for 'Other' Vocal Expressions:

Clicking sounds: The individual clicks their tongue or makes a slight sharp noise/speech sound with the tongue.

Atypical Laughing: The individual expresses emotion with an audible, vocal expulsion of air from the lungs that is a loud burst of sound that is shrill, piercing or unusual.

Mumbling: The individual, with their lips moving, has a low volume of voice but no distinguishable words and/or phrases can be heard by others.

Singing: The individual makes musical sounds with the voice, most often consisting of words with a set tune.

Talking loudly: The individual utters words or sentences in a loud or high voice.

Whistling: The individual makes a high-pitched sound, tune or musical notes by forcing air through the mouth.

5. Motor Expressions (Repetitive)

These expressions include motor behaviour that is repetitive and persistent in nature. The motor behaviour may be goal-directed where the individual is attempting to perform or accomplish motor activities to communicate an unmet need, self-soothe, obtain or remove item(s), gain access to sensory or body stimulation, acquire attention, get somewhere familiar or comforting, re-configure their environment, or seek another setting. The motor behaviour may be perceived by others to be disturbing for staff and co-clients(s), and can also be distressing or problematic for the individual.

Banging: The individual is striking or putting down an item or body part (e.g. hand) forcefully and noisily on a hard surface (e.g. table or wall), typically in anger or in order to attract attention.

Collecting/Hoarding: The individual is bringing, gathering or excessively accumulating items together and placing them in one separate location or scattered in an area. The individual may demonstrate a persistent difficulty of getting rid of or parting with collected items.

Disrobing: The individual is removing part or all of their clothing where the underclothes or bare skin is exposed. This typically occurs in a public area and in the sight of others.

Exploring/Searching: The individual is attempting to perform or accomplish motor activities to explore their environment or get from one place to another in the setting; get something familiar or comforting; find someone familiar or comforting; or to exit from the environment by touching doorknobs, banging on the door(s), walking from door to door, trying to open each door, waiting by exit door, or trying to exit the setting when the door opens.

Fidgeting: The individual is making small movements - especially of the hands and feet, moving around in their seat or wheelchair, getting up and down within a brief period of time.

Grinding teeth: The individual is clenching or grinding/sliding the upper and lower teeth together or backwards and forwards over each other when awake or asleep.

Pacing: The individual is walking back and forth in a limited area, up and down the hallways, circling large areas, continuously walking, moving from one location to another without diversion, and/or propelling oneself back and forth in a wheelchair. The individual may be ambulating in a quick, sharp manner, have a shorter gait, fists clenched, and an angry facial expression.

Rattling: The individual is making a rapid succession of short, sharp knocking sounds when an item is shaken or when there is friction between two objects.

Rocking: The individual is moving backwards and forwards or from side to side in a regular way.

Rummaging: The individual is searching for something by moving and going through other items and looking into, under, and behind furniture, drawers, shelves and other places.

Examples for 'Other' Motor Expressions:

Barricading doors: The individual is moving an item/object in front of a door (e.g. bedroom or exit door) to make it difficult for other staff and co-clients to move the door to enter or exit the room.

Clapping hands: The individual is hitting the palms of the hands together repeatedly and forcefully to make a loud or sharp sound.

Climbing out of bed: The individual is lying in bed with one or both legs over the bed rails attempting to rise off the bed. They can also be sitting upright at the side or bottom of the bed with one or both feet on the floor.

5. Motor Expressions (Repetitive)

Climbing out of wheelchair: The individual is sliding their body in a downward or upper motion while in their wheelchair causing them to slide out of the wheelchair onto the floor.

Picking/Scratching Self: The individual uses the fingers/fingernails of one or both hands applied to their own body (directly or through their clothing) causing the skin to become reddened or causing a wound/scab.

Rearranging furniture: The individual moves or changes the order or position of furniture in a different way (e.g. moving from one room to another).

Tapping fingers or feet: The individual hits their fingers or feet gently and repeatedly to make short, sharp noises.

6. Sexual Expression of Risk

This may include forms of verbal and physical sexual expression that is considered intrusive and without the knowledge/consent of the intended individual. This may include vivid and lewd sexual comments, unwanted verbal sexual propositions and unwanted verbal sexual advances. A physical expression may include unwanted kissing, unwanted fondling, unwanted grabbing and unwanted touching of others' genital areas, removing the clothes of co-clients, and attempting or miming penetrative sex. An individual could exhibit these behaviours with co-clients of both sexes, family members, staff and any other individuals within the setting, in which case the appropriate selection must be made from the Context variables and documented in the Context Column.

Explicit sexual comments: The individual makes sexual comments, either targeted directly towards another individual or spoken out loud to no one in particular. The sexual content of the speech can include a sexual proposition for a sexual act, a sexual advance and/or a comment made about an individual's body part.

Public masturbation: The individual is found in a public setting (e.g. dining room, living room, nursing station) where they are or could be observed by other individuals (whether they are co-clients, staff and/or family visitors) masturbating. This behaviour would not be considered a 'Sexual Expression of Risk' if they were found engaging in this behaviour when alone in their own 'private' space (e.g. their bedroom or private bathroom) unless there is an issue related to personal safety or skin integrity.

Touching others - genitals: The individual uses their lips, mouth, tongue, hands, arms and/or feet to reach out and make contact with another person's genitals including stroking/squeezing/kissing the breast/nipple region and groin/anal region.

Touching others - non-genitals: The individual uses their lips, mouth, tongue, hands, arms and/or feet to reach out and make contact with another person's body including stroking/squeezing/kissing the earlobes, neck, buttocks, armpits, knees and/or back of knees, etc.

Examples for 'Other' Sexual Expressions of Risk:

Exposing genitals: The individual (male or female) reaches within their clothes or removes clothes such that their genitalia are exposed in the presence of others. The exposed female breast is also considered within this behavioural category.

Kissing: The individual is engaged with another in deep kissing that is prolonged. This behavioural category does not include kissing on the cheek or any type of social kissing (e.g. on the hand, or kissing briefly on the lips).

7. Verbal Expression of Risk

Verbal expression of risk behaviours are considered by most to negatively impact the social environment and thus represent potential risk, especially if they occur for prolonged periods.

I**nsults:** The individual verbally expresses a disrespectful, negative statement towards another individual (co-clients, staff, and/or family member) in regards to the way they look or speak for example.

Screaming: The individual has a raised volume of voice in an angry, shrill tone, directed towards another individual or group of people.

Swearing: The individual utters a word(s) considered to be rude or offensive towards an intended individual or group of individuals. The volume of their voice may be loud and tone is sharper.

Threatening: The individual utters words that are threatening in nature (e.g. intentions of physical harm) towards an individual or group of people. The individual has an angry, glaring facial expression and their body posture may be quite tense with their fists clenched.

Self-harm: The individual makes comments about wanting to die, asking to die, and/or threatening to harm or kill themself.

Examples for 'Other' Verbal Expressions of Risk:

Argumentative: In an angry tone of voice the individual disagrees with others. They may be adamant that others are wrong and what they are saying or doing is the only right way

8. Physical Expression of Risk

Physical expression of risk have the potential for physical injury or psychological trauma.

Biting: The individual clenches their teeth together onto or towards another person's body to cause harm.

Choking others: The individual outstretches both arms to grab another person's throat region and squeeze. In some cases the individual may push another person to the wall with one hand on the throat.

Grabbing: The individual makes contact and holds onto another person and could be directed at a body part, hair, or clothing, in an attempt to control that other person.

Hair pulling: The individual reaches out to grab another person's hair and pulls the hair.

Hitting: The individual moves their arm towards another person in a quick motion touching that person's body part.

Kicking: The individual strikes a sudden forceful thrust with the foot towards another person.

Pinching: The individual reaches out with two fingers together towards another person. The fingers grab a piece of skin on a body part and squeeze the skin together causing harm to the intended individual.

Punching: The individual clenches/closes one or two fists and moves them forward towards another person.

Pushing: The individual extends one or both arms, moving in a fast forward motion, making contact with another person and in an attempt to physically move that individual.

Scratching: The individual extends their fingers toward another person and makes contact with their body, moving their fingers in a downward or upper motion against the skin of the person causing harm. This behaviour can leave visible reddened marks or cause a wound/scab on the person's skin.

Self-injurious: The individual causes harm to their own body. This could include hitting oneself on the head with their hand, hitting their head on a wall/floor, obtaining a sharp object and cutting themselves with that object, drinking flammable or poisonous substances, obtaining a lighter and attempting to burn oneself on their arms or legs, etc.

Slapping: The individual has an open faced hand, moving a fast forward motion making contact with another person's body.

Spitting: Expulsion of saliva from the individual's mouth, aimed at another person.

Throwing: The individual uses one or both hands to reach and pick up another object near his/her body, in a quick upward/downward motion the individual releases the object from their hand(s) and the object flies in the air.

Examples for 'Other' Physical Expression of Risk:

Headbutting: The individual moves their head in a frontward or backward motion in a forceful manner making contact with another person's body part or an object.

Digging fingernails: The individual reaches out with their fingers towards another person. They then apply pressure to their fingers digging their fingernails into the skin which may cause redness and bleeding to the skin.

9 & 10 Examples of Additional Behaviour

This section can be utilized for additional behaviour(s) that the clinical team want to track and know more about. In many cases clinical teams may have made a referral to a psychiatric specialist or team for consultation regarding psychiatric symptoms related to dementia or other mental health illness. If such a referral has been acquired, it will be beneficial for the clinical team to discuss the wording to be used for this category.

Note: The behaviours to be included in #9 & 10 should be decided upon at the start of the BSO-DOS© recording period, and not added after the observation period has started. Adding behaviours part way through will invalidate the calculations.

You can choose to customize and collect data for one or two of the individual's behaviours that are not included in the above sections. Examples include:

(Acting) Suspicious: The individual is behaving in way that displays that they are suspicious of someone or something. This may include being suspicious of a family member, co-client or staff member in relation to them doing/planning something of concern (e.g. having an affair, stealing money or attempting to poison others). These concerns may be verbalized.

(Reacting to) Visual hallucinations: The individual is behaving as if someone or something is present that others do not see. This may include pointing or reaching out to grab things in the air, bending down to reach for something when nothing is there or verbalizing about what they see. Common hallucinations include animals, children or other human figures.

(Reacting to) Auditory hallucinations: The individual is behaving as if someone or something is present that others do not see and/or hear. The individual may be experiencing auditory hallucinations when they are hearing one or more other people talking, music sounds or other sounds which they perceive as real. The individual may lean over and place their ear close to a fan or air conditioner and verbalize what they are hearing.

Drowsy/Somnolent: A state when the individual is lethargic/sluggish; and somewhere between being very sleepy, relaxed in consciousness, and yet not unconscious. The individual may still be aware of what is going on around them; however, typically there is interference with participation in activities, meals etc.

Smearing Stool: The individual is incontinent of bowel and reaches with their hands or fingers into their pants/dress/gown and removes the feces and places feces on surfaces within their environment (e.g. bed sheets, bed rails, wheelchair, walls and floors).

Voiding/defecating in unusual places: The individual defecates or voids in any other area besides the toilet (e.g. garbage cans, eye wash stations).

Medication refusal: The individual refuses to take the prescribed medication, despite attempts by staff, by saying "no" or refusing to open their mouth to ingest the medication, spitting out the medication when it is administered or hiding the medication.

Conversely, you can choose to focus on a specific behaviour (e.g. Crying) from a behaviour category (e.g. Vocal Expressions) to obtain more information. For instance, you may have identified that the individual demonstrates several behaviours in the Vocal Expressions section (e.g. Crying, Grunting, and Humming); however, your team is particularly interested in charting distinct crying episodes and identify this as '#9 - Other', while you agree to simply continue checking the grunting and humming boxes under '#4 - Vocal Expressions'.

Context

Assessing behavioural expressions of concern can be a challenging puzzle to solve and investigating the cause is a very important factor to consider when an individual has difficulty communicating and is showing signs of distress. Considering context involves monitoring changes in a person's environment, health and medications which can directly impact cognition, mood and behaviour. Discovering a person's preferences and evaluating changing abilities can greatly assist in individualized care planning. Adding context information to the BSO-DOS© can assist with gaining a better understanding of the cause of the behavioural symptoms. The causes can range from pain, lack of exercise, or poor nutrition. Social and environmental factors can include an unfamiliar caregiver or boredom. Recognizing and tracking what happened in the individual's environment before the behaviour occurred, who was present, who was affected, and what emotions were expressed, may be helpful in identifying contributing factors for certain behaviours. Physical and mental status changes can influence changes in a person's sensory perception and can impact their ability to communicate their needs. All behaviours have meaning that are expressions of unmet needs that if understood and identified can be mitigated with tailored interventions. Whenever possible, the team should endeavor to identify unmet needs rather than assume that the behaviour is a deliberate attempt to evoke harm to co-clients or staff. Evaluating context can assist with developing individualized psychosocial approaches and appropriate pharmacological interventions. Considering context in behavioural symptoms can help create a unique care plan and enhance overall quality of life.

Psychological, neurological and physical factors to consider:

- Elimination pattern changes: Constipation, urinary frequency or retention
- Infections
- Injuries
- Dehydration
- Nutritional status changes: Decreased or increased appetite
- Delirium
- Psychosis
- Anxiety
- Depression
- Sleep pattern disturbances
- Dementia
- Medication changes, withdrawal or adverse effects
- Hearing and vision problems
- Onset of a new medical condition or worsening of a chronic illness
- Inability to express needs

Environmental and social factors to consider:

- Room change or relocation
- Changes in care or daily routine
- Noisy or congested environments
- Loneliness, social isolation or lack of socialization opportunities
- Lack of meaningful activities
- Lack of exercise
- Changes in staff
- Changes in family situations or social settings
- Manifestation of grief or loss
- Loss of autonomy
- Adjusting to peers and communal living
- Lack of validation

Context Definitions

A - Alone: In a room by self, separated or isolated from others. Unaccompanied, unattended or without companionship.

L - Loud/Busy Environment: An over-stimulating and noisy area. This may include a busy dining room, a tub filling, a TV at a loud volume, a bustling visitors' lounge, a congested hallway and/or a team station at shift change. This can also include rooms with bright lighting, heavy patterned or excessively decorated décor.

Q - Quiet Environment: A peaceful, calm or tranquil area. A space which has no disturbances or turbulent movement.

F - Family/Visitors Present: A social encounter with family, friends, volunteers, pet therapy, spiritual care or paid companion.

P - Personal Care: Interactions when being assisted with bathing, perineal care, dressing, washing and toileting.

N - Nutrition: Eating or drinking: The provision of food or drink.

M - Medication for behaviours given: The administration of medications prescribed to help address behavioural symptoms such as anxiety, depression, hallucinations, paranoia or insomnia. Drug options of psychotropic medications are antidepressants, antipsychotics, anti-anxiety medications, mood stabilizers and hypnotics. Monitoring this on the BSO-DOS© can assist with determining whether or not the medication is having desired effect.

P - Pain medication given: Administration of medications used to relieve discomfort associated with disease, injury or surgery. Types include Nonsteroidal anti-inflammatory drugs (NSAIDS), corticosteroids, acetaminophen, opioids and muscle relaxants. Monitoring this on the BSO-DOS© can help evaluate timing of the pain and severity, activity at time of pain and effectiveness of pain control regimen.

T - Treatment: A medical/nursing procedure with the intention to measure, diagnose, treat, or restore function. Examples include: specimen collection, neurological assessments, support and maintain different types of tube feedings, topical treatments, tracheotomy care, catheter care, obtaining vital signs, blood glucose testing, respiratory procedures, bowel care and wound care.

R - Expressions directed at Resident/patient(s) or visitor(s): The behaviour expressed is directed towards a co-client, family member, and visitor or volunteer (e.g. the individual yells at a family member or the individual punches a co-client).

S - Expressions directed at Staff: The behaviour expressed is directed towards a staff member (e.g. the individual swears at the staff member providing personal care).

X & Y - [Optional] Identify additional relevant context specific to current situation (e.g. incontinent of stool, on an outing).

Highlighting the Data Collection Sheet

After/during completion of the Data Collection Sheet, highlight the numbers within the 'Observed Behaviour' column according to the colour-coded Observed Behaviours legend. Consider having a dialogue with team members to reinforce best practice and to develop team skills in recognizing behavioural patterns as the data is being collected and highlighted.

If additional behaviours have been added under #9 and #10, the team can decide how best to colour code these numbers. Some options that the team may consider include:

- Leave #9 and/or #10 white
- Assign colours to #9 and/or #10 that are already in the Observed Behaviours legend that best aligns with the behaviour(s).

Step #3: Analysis & Planning

The original DOS, with its colour-coded data, provided an at-a-glance method of determining general patterns of behaviour that was useful for both clinicians as well as for families. The new BSO-DOS© retains all of this, and adds the power of data tabulation by replacing opinion with actual quantification of behaviour that then guides interpretation. This structured, systematic approach provides a means to answer specific clinical questions and to address common clinical concerns.

Analysis Table

The analysis table provides a standard way to calculate the data collected on the Data Collection Sheet and helps to answer key questions noted below. Each question represents a task and calculation in the analysis process.

Clinical Question # 1 | **How many times did each observed behaviour occur on each day?**

Task | **Obtain the frequency by adding up the number of blocks for each observed behaviour category for each observation day.**

Count the number of half-hour blocks in which each of the behavioural categories occurred, for each of the five days on the Data Collection Sheet.

On the Data Collection Sheet, look down the first column labeled 'Observed Behaviour' (this represents the first day of observation on the BSO-DOS© data collection sheet). Count the #1s in that column. Enter that value) under the 'Day #1' column in the '#1 - Sleeping' row of the analysis table. Continue to do the same for the remaining observed behaviours (#2 - #10) for Day 1. Do the same Day 2 - Day 5 of the Data Collection Sheet to fill in all of the daily totals for each observed behaviour category.

		Total the Blocks for Each Day (Add up the number of blocks for each category per day)						**Total the ½ Hour Blocks** (Add up the number of blocks for each category over 5 days)		**Calculate the Average Hours Per Day** (Divide the total ½ hour blocks by 10) Hint: Move the decimal point one space to the left	**Concerns**		
		Day #1	Day #2	Day #3	Day #4	Day #5					Frequency	Duration	Risk
1	Sleeping	15	10	16	18	16	=		÷10		❑	❑	❑
2	Awake/Calm	24	28	18	22	23	=		÷10		❑	❑	❑
3	Positively Engaged	5	3	1	2	3	=		÷10		❑	❑	❑
4	Vocal Expressions	3	5	7	5	4	=		÷10		❑	❑	❑
5	Motor Expressions	1	1	2	1	1	=		÷10		❑	❑	❑
6	Sexual Expression of Risk	0	0	0	0	0	=		÷10		❑	❑	❑
7	Verbal Expression of Risk	0	1	3	0	1	=		÷10		❑	❑	❑
8	Physical Expression of Risk	0	0	1	0	0	=		÷10		❑	❑	❑
9							=		÷10		❑	❑	❑
10							=		÷10		❑	❑	❑

Counting the number of ½ hour blocks gives you the frequency with which each behaviour occurs, for each observation day. Concern related to the frequency of behaviours will be influenced by the associated level of risk.

Clinical Question #2 | **Across the five days, is a behaviour of interest increasing, decreasing or remaining consistent?**

Task | **Examine the pattern across the five days for each/any observed behaviour.**

Simply look across any line of the analysis table to see if a behaviour of interest is occurring with a similar frequency each day, or whether the behaviour is changing (increasing/decreasing) across the five days.

You may also wish to refer back to the Data Collection Sheet to see whether a particular behaviour occurs at the same times each day.

Clinical Question #3 | **How many times in total, did each observed behaviour occur over the five days of observation?**

Task | **Add up the number of blocks for each observed behaviours category over the five day observation period.**

Calculate the total number of half-hour blocks in which each of the observed behaviour categories occurred over the five day observation period.

For each observed behaviour category add the numbers you entered in a given row from Day #1 to Day #5. Put that total in the next cell after the equals sign, in the column labeled 'Total the ½ Hour Blocks'.

		Total the Blocks for Each Day (Add up the number of blocks for each category per day)						**Total the ½ Hour Blocks** (Add up the number of blocks for each category over 5 days)		**Calculate the Average Hours Per Day** (Divide the total ½ hour blocks by 10) Hint: Move the decimal point one space to the left	**Concerns**		
		Day #1	Day #2	Day #3	Day #4	Day #5					Frequency	Duration	Risk
1	Sleeping	15	10	16	18	16	=	75	÷10		❑	❑	❑
2	Awake/Calm	24	28	18	22	23	=	115	÷10		❑	❑	❑
3	Positively Engaged	5	3	1	2	3	=	14	÷10		❑	❑	❑
4	Vocal Expressions	3	5	7	5	4	=	24	÷10		❑	❑	❑
5	Motor Expressions	1	1	2	1	1	=	6	÷10		❑	❑	❑
6	Sexual Expression of Risk	0	0	0	0	0	=	0	÷10		❑	❑	❑
7	Verbal Expression of Risk	0	1	3	0	1	=	5	÷10		❑	❑	❑
8	Physical Expression of Risk	0	0	1	0	0	=	1	÷10		❑	❑	❑
9							=		÷10		❑	❑	❑
10							=		÷10		❑	❑	❑

Clinical Question #4 | **What was the average number of hours each observed behaviour occurred over the 5 observation days?**

Task | **Convert the total ½ Hour blocks for each behaviour into average hours by dividing the total ½ hour blocks by 10.**

The average hours per day column takes the number in the "Total the ½ Hour Blocks" cell and converts it into the average number of hours a particular behaviour occurred over the 5 days of observation. For each observed behaviour category, (lines 1-10 in the analysis table), divide the number you calculated in the "Total the ½ Hour Block" cell by 10. Simply move the decimal point one space to the left.

		Total the Blocks for Each Day (Add up the number of blocks for each category per day)						**Total the ½ Hour Blocks** (Add up the number of blocks for each category over 5 days)		**Calculate the Average Hours Per Day** (Divide the total ½ hour blocks by 10) Hint: Move the decimal point one space to the left	**Concerns**		
		Day #1	Day #2	Day #3	Day #4	Day #5					Frequency	Duration	Risk
1	Sleeping	15	10	16	18	16	=	75	÷10	7.5	❑	❑	❑
2	Awake/Calm	24	28	18	22	23	=	115	÷10	11.5	❑	❑	❑
3	Positively Engaged	5	3	1	2	3	=	14	÷10	1.4	❑	❑	❑
4	Vocal Expressions	3	5	7	5	4	=	24	÷10	2.4	❑	❑	❑
5	Motor Expressions	1	1	2	1	1	=	6	÷10	.6	❑	❑	❑
6	Sexual Expression of Risk	0	0	0	0	0	=	0	÷10	0	❑	❑	❑
7	Verbal Expression of Risk	0	1	3	0	1	=	5	÷10	.5	❑	❑	❑
8	Physical Expression of Risk	0	0	1	0	0	=	1	÷10	.1	❑	❑	❑
9							=		÷10		❑	❑	❑
10							=		÷10		❑	❑	❑

For example, if you counted up all the times #1 - Sleeping) occurred on the Data Collection Sheet and recorded these as 15, 10, 16, 18, 16 for Day #1 to Day #5 respectively, the total number of half hour blocks for Sleep would be the total of these numbers (Total = 75). Therefore, the individual slept an average of 7.5 hours per each 24 hour period.

For some behaviours, such as sleep, it may make more sense to talk about average hours, instead of the total number of (1/2 hour) blocks that a behaviour occurred. E.g. "He slept an average of 7.5 hours in each 24 hour period during the five day observation period".

For other behaviours, a total count of ½ hour blocks (total frequency) makes more sense. E.g. "He demonstrated physical expressions of risk 16 times over the five observation days".

Typically, it makes most sense to talk about sleep, calm wakefulness, and positive engagement in terms of average hours. However, when you are more interested in counting discrete occurrences of behaviours, the frequency (total ½ hour blocks) makes more sense, as in the case of the number of times the team observed Vocal Expressions, Motor Expressions, or any of Sexual/Verbal/Physical Expressions of Risk.

Clinical Question #5 | **Do the documented behaviour patterns and calculated frequencies point to clinical concerns, and if so, why?**

Task | **Review the highlighted Data Collection Sheet and compare/contrast with the calculations to determine significant clinical concerns, and the reason for concern.**

This question asks if the pattern of the behavioural observations is cause for concern, and for what reason(s). Most often, behaviour is of concern because it occurs frequently and/or lasts for an extended period and/or or represents significant risk to the individual or to others. In the far right three columns of the analysis table, check off the concerns that apply to each of the observed behaviour categories. You may need to look at the Data Collection Sheet as well as the analysis table. You can check off more than one concern. Identifying these concerns with the clinical team will assist in the identification of interventions leading to positive outcomes.

		Total the Blocks for Each Day (Add up the number of blocks for each category per day)						**Total the ½ Hour Blocks** (Add up the number of blocks for each category over 5 days)		**Calculate the Average Hours Per Day** (Divide the total ½ hour blocks by 10) Hint: Move the decimal point one space to the left	**Concerns**		
		Day #1	Day #2	Day #3	Day #4	Day #5					Frequency	Duration	Risk
1	Sleeping	15	10	16	18	16	=	75	÷10	7.5	☐	☐	☐
2	Awake/Calm	24	28	18	22	23	=	115	÷10	11.5	☐	☐	☐
3	Positively Engaged	5	3	1	2	3	=	14	÷10	1.4	☑	☐	☐
4	Vocal Expressions	3	5	7	5	4	=	24	÷10	2.4	☑	☑	☐
5	Motor Expressions	1	1	2	1	1	=	6	÷10	.6	☐	☐	☐
6	Sexual Expression of Risk	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
7	Verbal Expression of Risk	0	1	3	0	1	=	5	÷10	.5	☐	☐	☐
8	Physical Expression of Risk	0	0	1	0	0	=	1	÷10	.1	☐	☐	☐
9							=		÷10		☐	☐	☐
10							=		÷10		☐	☐	☐

Completing the Analysis Table

Step #3 – Analysis & Planning

Who completes this section?

A team member or a clinical team whose scope of practice involves assessment and analysis (e.g. a Nurse or Allied Health Professional).

Before starting this section: Highlight the numbers on the data collection sheet according to the colour coded 'Observed Behaviours' legend.

Add up the number of blocks for each category per day.

Add up the number of blocks for each category over the five days.

Divide the total ½ hour blocks by ten for each category.

Hint: Move the decimal point one space to the left.

		Total the Blocks for Each Day (Add up the number of blocks for each category per day)						Total the ½ Hour Blocks (Add up the number of blocks for each category over 5 days)		Calculate the Average Hours Per Day (Divide the total ½ hour blocks by 10) Hint: Move the decimal point one space to the left	Concerns		
		Day #1	Day #2	Day #3	Day #4	Day #5					Frequency	Duration	Risk
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2	Awake/Calm	24	28	18	22	23	=	115	÷10	11.5	☐	☐	☐
3	Positively Engaged	5	3	1	2	3	=	14	÷10	1.4	☑	☐	☐
4	Vocal Expressions	3	5	7	5	4	=	24	÷10	2.4	☑	☑	☐
5	Motor Expressions	1	1	2	1	1	=	6	÷10	.6	☐	☐	☐
6	Sexual Expression of Risk	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
7	Verbal Expression of Risk	0	1	3	0	1	=	5	÷10	.5	☐	☐	☐
8	Physical Expression of Risk	0	0	1	0	0	=	1	÷10	.1	☐	☐	☐
9							=		÷10		☐	☐	☐
10							=		÷10		☐	☐	☐

Based on the BSO-DOS© data, check any concerns related to Frequency, Duration or Risk related to the observed behaviours.

Narrative Analysis

The narrative section of Step #3 (Analysis & Planning) is where possible explanations for the observed behaviour patterns from the completed BSO-DOS© Data Collection Sheet and the analysis table are offered and conclusions are drawn. The explanations for observed patterns include consideration of what the data reveal as well as what possible causes and contributing factors might be.

When explaining what the BSO-DOS© data reveal, one might consider:

- Time of day a behaviour occurs
- Consistency in frequency across the 5 days for a particular behaviour
- Weekday vs. weekend
- Does the behaviour occur several times throughout the period or in consecutive blocks? For example, is sleep consolidated into long periods of the night or are the blocks spread across both daytime and nighttime?
- What contextual cues often accompany a particular behaviour? The BSO-DOS© offers a wide range of contexts common in care settings as well as care tasks and care situations that are entered along with the observed behaviours.
- Do certain behaviours occur together or in close proximity? For example, do verbal and physical expressions of risk often occur at the same time? Is verbal expression of risk usually a sign that physical expression of risk is likely to follow?

This section should include a comment that corresponds to the intended reason for completing the BSO-DOS©:

- What stands out in this individual who has recently moved in?
- Is a new behaviour emerging that wasn't there before or do the data not support that proposed idea?
- What are the behaviours of concern as identified by frequency, duration and/or risk?
- Was the new intervention successful?
- Did the medication adjustment have any effect?
- Is an urgent referral needed to a higher level of assessment and care?

When considering possible causes and contributing factors, review the context information gathered on the Data Collection Sheet as well as any known personhood information. Data from other tools such as behaviour checklists, ABC (Antecedent, Behaviour and Consequence) tracking and pain measures may also be beneficial.

Completing the Narrative Analysis:

Who completes this section?

Ideally, this section is completed as a team in order to gain the perspectives of the interdisciplinary team members. The team member facilitating the discussion should have assessment and analysis within their scope of practice (e.g. a Nurse or Allied Health Professional).

In reflecting on the data calculations and patterns that emerged, note perceptions regarding 'what the BSO-DOS© data reveal'. This may include the specific behaviours observed, patterns or important times of day, how well the person sleeps and/or risk concerns.

What the BSO-DOS® data reveal (e.g. types of behaviours expressed, patterns, time of day, broken sleep): _____

Possible causes and contributing factors (consider collected context and personhood information): _____

In reflecting on the context data collected and known personhood information, note possible causes and contributing factors of the behaviours expressed during the five day period.

Next Steps

This final section uses the BSO-DOS© data to plan the next course of action. This may include a variety of actions or next steps including collecting more data after a specified interval, changing an intervention or medication, initiating detailed ABC charting, a change to the care plan, specific assistance from family, etc. The check-boxes provided, offer a straightforward way to communicate the plan that comes from the review of the BSO-DOS©. Ideally the clinical team and family review the BSO-DOS© findings together and collaboratively determine these next steps.

Changes Across Time

Using the above systematic approach to analyzing the BSO-DOS© allows you to compare snapshots across time. Frequencies, totals of half hour blocks, and/or averages can be compared to evaluate change, effectiveness of interventions or disease progression.

Completing Next Steps:

User Guide

Find the four page User Guide on the BSO-DOS© webpage: www.brainXchange.ca/BSODOS.aspx

FREQUENTLY ASKED QUESTIONS

1) **How will I ever code the behaviour seen every half hour? There is never enough time during the day!**

That 8 or 12 hour shift does go by so fast with all the clinical demands and documentation that you need to fit in; it can become overwhelming. We suggest if every half hour is just not feasible, take apart the day and put it in blocks of time. For example, every 2 hours make it a point to go to the BSO-DOS© Data Collection Sheet and record the behaviours from the last 2 hours or have a piece of paper in your pocket and write down the behaviour you see and the time and record it on the BSO-DOS© whenever you have the time to go to the sheet. Avoid the 'end of the shift' recording which tends to result in inaccurate recording and therefore the analysis is not useful.

2) **What happens if I see more than one behaviour occur in the same time block? Do I only put the number of the most disruptive or at risk behaviour and forget the other one?**

More than likely there will be more than one behaviour occurring in one time block. To appropriately analyze patterns and trends and to gain a 'true picture' we encourage the recording of all behaviours in the time block. Behaviours can be listed in the order in which they are observed, or from highest-to-lowest to express level of risk.

3) **What if another important behaviour comes up in the middle of a BSO-DOS©? Can I just add it in under #9 or 10?**

If a new behaviour is noticed during the observation period a decision will need to be made as a team on how to capture this new behaviour. For example, the team may decide to document episodes of the new behaviour within progress notes and use this information in the BSO-DOS© analysis. As part of 'Next Steps' in the BSO-DOS©, the team may then decide to initiate another BSO-DOS© to properly track that new emerging behaviour if the frequency or level of risk warrants it. Until that time, continue only coding the behaviours marked on the BSO-DOS© at the time it was initiated, because if another behaviour is added in the middle, the analysis and interpretation can become difficult and inaccurate. Alternatively, the team may decide to initiate a new BSO-DOS© in order to incorporate the new behaviour when there is significant concern associated with the level of risk.

4) **What do I do if I don't know how to describe or code the behaviour I just saw? How do I code it correctly in the time block if I don't know what 'number' it is?**

Depending on your location or setting, the ideal answer would be to ask the most responsible person for their assistance. If that is not possible, we ask that you leave the time block blank and tell your team lead and write a progress note describing what occurred and what you saw. Even though you left the time block blank you are still providing details to the team member(s) analyzing the data and making the treatment/intervention plan through your progress notes.

5) My client, who is currently being observed using the BSO-DOS©, has an appointment today and will be off-unit/grounds. How do I complete the time blocks when they are away?

Instead of assuming certain behaviours occurred during the period when the individual was not observed, draw a line through the 'Observed Behaviour' block(s), indicate in the 'Context' column that the individual was off-site/unit (this can be added as an X or Y in the context legend) and add your initials to the 'Initials' column.

6) All I need to do is put a number in the time block and then I'm done, right?

Not exactly. If there was a specific incident related to that time block that may need more dialogue and explanation, we encourage you to write a progress note. The information from the progress note is extremely valuable in gaining more information such as possible contributing factors and strategies that could be used in the care plan.

7) What is the value in checking the specific behaviours (listed under the behaviour category) if the team doesn't know exactly when they occur?

It is true that the completed BSO-DOS© doesn't indicate when specific behaviours occur (only the behaviour category). Adding this level of detail would have compromised the ease of use of the tool. However, checking the specific behaviours as they occur allows the team members to know and reflect upon what specific behaviours were expressed over the five day period. Reviewing the selected boxes will assist teams to distinguish between those behaviours that represent risk, those that can be safely accommodated, and those that would benefit from further assessment.

8) How long does the BSO-DOS© observation need to continue?

The BSO-DOS© contains a 'Background' section where the BSO-DOS© start and end date is to be recorded. This helps everyone to know the plan for how long the observation period is desired.

CASE STUDIES

Case Study #1

Mrs. Cheng (a pseudonym) is an 86 year old woman who has recently moved from her daughter's home to a long-term care home. Through collecting personhood information, staff learn that she has a large family and her home was often the central meeting place. She loved to cook and her specialty was homemade dumplings. The clinical team noticed there were times in the day when Mrs. Cheng calls out, yelling for help. When they go to assist her, they struggle to figure out what it is that she wants/needs. They decide to complete a BSO-DOS© to get a better understanding of the timing and context around these times of distress for Mrs. Cheng.

After the five day observation period, the team reflects on the calculations in the analysis table, the highlighted data collection sheet and the recorded context information.

Below is a snapshot of a portion of the completed and highlighted BSO-DOS© Data Collection Sheet:

	Observed Behaviour	Context	Initials*	Observed Behaviour	Context	Initials*	Observed Behaviour	Context	Initials*	Observed Behaviour	Context	Initials*	Observed Behaviour	Context	Initials*
Y/M/D	19/06/20			19/06/21			19/06/22			19/06/23			19/06/24		
0700	1		DF	1		DF	1		TC	1		TC	1		CM
0730	2		DF	4	A	DF	4		TC	1		TC	2		CM
0800	4	C	DF	4 7	C	DF	4 5	C	TC	4	C	TC	2		CM
0830	3	N	DF	2		DF	2		TC	2		TC	2		CM
0900	2		DF	4	A	PL	4		TC	4	A	TC	2		CM
0930	2		DF	2		DF	2		TC	2		TC	4	A	CM
1000	2		DF	2		DF	2		LL	2		TC	2		CM
1030	4 5	A	DF	3		DF	2		TC	3		TC	2		CM
1100	2		DF	2		DF	4		TC	2		TC	3		CM
1130	2		CC	2		DF	7		TC	2		TC	3		TC
1200	2		DF	2		DF	2		TC	2		TC	2		CM
1230	2		DF	2		PL	2	N	TC	2		CM	2		CM
1300	2		DF	4 5	C	DF	2		LL	4	L	TC	2		CM
1330	2		DF	2	Q	DF	4	L	TC	4	L	TC	4		CM
1400	3		MC	2		DF	4 5	L	TC	5	C	TC	4		TC
1430	2		DF	2		DF	7 8	C	TC	1		TC	5 7	C	CM
1500	2		RM	2		SL	4		CB	1		CB	2		LT
1530	2		RM	2		SL	2		CB	2		CB	2		LT
1600	2		RM	2		SL	3		CB	2		CB	2		LT
1630	2		RM	2		SL	2		CB	2		CB	2		LT
1700	2		RM	2		SL	2		CB	2		CB	2		LT
1730	2		RM	2		SL	2		CB	2		CB	4	P	LT
1800	4	A	NT	4		SL	4		GF	4	Q	CB	2		CB
1830	2		RM	2		PB	7	A	CB	4	P	LT	2		LT
1900	2		RM	2		SL	4	A	CB	3	F	CB	3		LT
1930	3	F	RM	3	F	SL	2		CB	3	F	CB	2		LT
2000	3	F	RM	3	F	SL	2		CB	2		CB	2		LT
2030	2		RM	2	P	SL	1		CB	2		CB	2		LT
2100	2		RM	2		SL	1		CB	1		CB	2		LT
2130	1		RM	2		SL	1		CB	1		CB	1		LT
2200	1		RM	2		SL	1		CB	1		CB	1		LT

Observed Behaviours

1 Sleeping

2 Awake/Calm

3 Positively Engaged

For #3-8 check as you observe:

- ☑ Activity
- ☑ Conversing
- ☐ Hand holding
- ☐ Other:
- ☐ Hugging
- ☐ Singing
- ☑ Smiling

4 Vocal Expressions (Repetitive)

- ☐ Crying
- ☐ Grunting
- ☐ Humming
- ☑ Moaning
- ☐ Other:
- ☐ Questions
- ☑ Requests
- ☐ Sighing
- ☐ Words

5 Motor Expressions (Repetitive)

- ☑ Banging
- ☐ Collecting/Hoarding
- ☐ Disrobing
- ☐ Exploring/Searching
- ☑ Fidgeting
- ☐ Other:
- ☐ Grinding teeth
- ☐ Pacing
- ☐ Rattling
- ☐ Rocking
- ☐ Rummaging

6 Sexual Expression of Risk

- ☐ Explicit sexual comments
- ☐ Public masturbation
- ☐ Touching others - genitals
- ☐ Touching others - non-genitals
- ☐ Other:

7 Verbal Expression of Risk

- ☐ Insults
- ☑ Screaming
- ☐ Other:
- ☑ Swearing
- ☐ Threatening

8 Physical Expression of Risk

- ☐ Biting
- ☐ Choking others
- ☐ Grabbing
- ☐ Hair pulling
- ☐ Hitting
- ☐ Kicking
- ☐ Pinching
- ☐ Other:
- ☐ Punching
- ☐ Pushing
- ☐ Scratching
- ☐ Self-injurious
- ☑ Slapping
- ☐ Spitting
- ☐ Throwing

9

10

Below is a snapshot of the completed BSO-DOS© Analysis Table:

		Total the Blocks for Each Day (Add up the number of blocks for each category per day)						Total the ½ Hour Blocks (Add up the number of blocks for each category over 5 days)		Calculate the Average Hours Per Day (Divide the total ½ hour blocks by 10) Hint: Move the decimal point one space to the left	Concerns		
		Day #1	Day #2	Day #3	Day #4	Day #5					Frequency	Duration	Risk
1	Sleeping	15	10	16	18	16	=	75	÷10	7.5	❑	❑	❑
2	Awake/Calm	24	28	18	22	23	=	115	÷10	11.5	❑	❑	❑
3	Positively Engaged	5	3	1	2	3	=	14	÷10	1.4	☑	❑	❑
4	Vocal Expressions	3	5	7	5	4	=	24	÷10	2.4	☑	☑	❑
5	Motor Expressions	1	1	2	1	1	=	6	÷10	.6	❑	❑	❑
6	Sexual Expression of Risk	0	0	0	0	0	=	0	÷10	0	❑	❑	❑
7	Verbal Expression of Risk	0	1	3	0	1	=	5	÷10	.5	❑	❑	❑
8	Physical Expression of Risk	0	0	1	0	0	=	1	÷10	.1	❑	❑	❑
9							=		÷10		❑	❑	❑
10							=		÷10		❑	❑	❑

Based on this information the team determines that the BSO-DOS© data reveal:

- When Mrs. Cheng is alone she frequently expresses vocal expressions.
- Mrs. Cheng expresses increased distress through vocal and motor expressions that sometimes leads to verbal and physical expression of risk after a poor night's sleep.
- The more Mrs. Cheng is positively engaged, the less she expresses responsive behaviours.
- On average, there is less than 1.4 hours per day that Mrs. Cheng is positively engaged.

In collaboration with the family, the team identifies the following possibile causes and contributing factors:

- It is stressful for Mrs. Cheng to be alone. Her family reminds the team that Mrs. Cheng is used to having others around.
- Mrs. Cheng slept better when she had pain medication at bedtime; this was not given the night she slept poorly.
- Mrs. Cheng may need more time engaged in activities that are meaningful.

In collaboration wth the family, the team make the following plans based on what they learned from the BSO-DOS©:

- Change bedtime pain medication to a regular dose (instead of prn) to alleviate pain and promote a restful sleep.
- Trial a new activity with Mrs. Cheng that would be meaningful and provide a sense of home and purpose: Provide Mrs. Cheng with white non-toxic playdough to simulate dumpling dough. After meals, after the tables are cleared, a team member will provide Mrs. Cheng with the playdough and a tray from home that she previously used for dumpling making. Staff encourage her family members to visit her during these times to make the dumplings together.

The clinical team decides to repeat the BSO-DOS© to determine the impact of these new interventions.

Below is a snapshot of the narrative analysis and next steps section of the BSO-DOS© that captures this discussion and planning:

What the BSO-DOS® data reveal (e.g. types of behaviours expressed, patterns, time of day, broken sleep):

- Increased distress (vocal & motor expressions that sometimes lead to verbal and physical expressions of risk) after a poor sleep
- The more Mrs. Cheng is positively engaged the less she expresses responsive behaviours
-Mrs. Cheng vocal expressions occur mostly when she is alone (e.g. in the morning before she gets out of bed and after meal times when residents are leaving the dining room)
- On average there is less than 1.4 hours per day that Mrs. Cheng is positively engaged

Possible causes and contributing factors (consider collected context and personhood information):

- Dislikes being alone - Increased vocal expressions that lead to behaviours of increasing risk (starts when she is alone)
- Not engaged in meaningful activity - Known personhood information: Mrs. Cheng had a large family and she loved to cook (her specialty was homemade dumplings).
- Pain - Mrs. Cheng had a better sleep when she had pain medication at bedtime (this was not given the night she slept poorly)

Next Steps (check all that apply):

- ☑ Continue BSO-DOS® for another 5 days
- ☐ Repeat BSO-DOS® in 4-6 weeks
- ☐ No further BSO-DOS® completion at this time
- ☐ ABC charting around particular events/behaviour
- ☑ Clinical huddle/meeting
- ☐ Progress note written
- ☑ Consult/meet with Substitute Decision Maker (SDM)
- ☑ Medication adjustment/review
- ☑ Non-pharmacological interventions suggested:
  - Play dough to simulate dumpling making
  - Music playing in her room
- ☑ Care plan updated
- ☐ Referral:
- ☐ Other:

Case Study #2

Mrs. Novak (a pseudonym) is an 82 year old woman who recently moved into a long-term care home. She is widowed with four children, eight grandchildren, and three great-grandchildren whom visit regularly. Her first husband passed away over 55 years ago which caused a significant amount of grief and depression for her and her two young children at the time. She re-married a few years later to her second husband and had two other children. Her children describe a loving relationship between their mother and her second husband for 30 years before he passed 10 years ago.

Over the past seven years her family have seen a gradual decline in Mrs. Novak's memory and her ability to complete her regular day to to day activies. Five years ago she was diagnosed with dementia and for the last few years the family worked together, along with home care supports, to keep Mrs. Novak in her home. Due to increase caregiver stress and Mrs. Novak's increasing care needs, the decision was made for her to move into a long-term care home.

Soon after moving to the home, nursing staff notice that Mrs. Novak becomes quite tearful and cries out for extended periods of time throughout the daytime and overnight hours. When staff and family try to console her she continues to cry and stroke their hands. Nursing staff also note that Mrs. Novak doesn't have any difficulties taking her medication and does not appear to find personal care activities stressful. The clinical team decide to utilize the BSO-DOS© as they are hoping to gain a true baseline measure of the frequency of the crying episodes and to glean any patterns in regards to timing, duration and any contextual variables that could be present.

The baseline BSO-DOS© showed within the analysis table that Mrs. Novak engaged in crying behaviour on average 8.3 hours in each 24 hour period, which is fairly extensive and quite distressing. Context variables were marked as 'alone', 'when family were visiting', and 'when eating/drinking' during meal times.

The team discussed these results and reviewed the personhood information they had collected about Mrs. Novak. They knew that she had a particular love for Eastern European folk songs and through further conversation with her children the team learned that music and dancing played an important role in helping her grieve her first husband's passing. The team and family made a decision together to trial music therapy in an attempt to decrease her distress and crying and ultimately increase her quality of life. The family arranged to have some of her personal music brought from home. A plan was put in place for music to be played in her room using speakers and also through headphones in the dining room.

Another BSO-DOS© was used to assess the effectiveness of these non-pharmalogical intervention on her crying behaviour. Music therapy was added within the context section on the data collection sheet as 'X'. After the introduction of music therapy, the average of crying behaviour had decreased to an average 5.6 hours in each 24 hour period as calculated within the analysis table. The data also showed that when 'music therapy' was recorded in the context that there were periods that Mrs. Novak was 'Positively Engaged' (specifically she was noted to be smiling and singing). The staff and the family continued to think of additional ways to engage Mrs. Novak through music.

This case example, shows how useful the BSO-DOS© can be to monitor and assess the effectiveness of a person-centred strategy. The clinical team and Mrs. Novak's family had concrete information that helped them understand her behaviour and personal expressions, as well as measure the outcome of a tailored intervention.

Context	
A	**A**lone
L	**L**oud/busy environment
Q	**Q**uiet environment
F	**F**amily/visitors present
C	Personal **C**are (e.g. bathing, incontinent care, toileting)
N	**N**utrition - eating/drinking
M	**M**edication for behaviours given
P	**P**ain medication given
T	**T**reatment (e.g. wound care, creams)
R	Expressions directed at **R**esident/patient/visitor(s)
S	Expressions directed at **S**taff
X	Music Therapy
Y	

Case Study #3

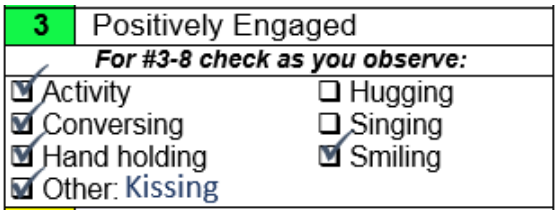
Mr. Hogan (a pseudonym) is a 72 year old man who has lived in a long-term care home for 2 years. Mr. Hogan, divorced 12 years ago, is not close with his son and daughter. They only visit him, coming together, on special occasions such as Mr. Hogan's birthday and during the holiday season. They reveal that their father was a 'difficult' person who was verbally abusive to their mother throughout their marriage. He was a man with 'high expectations of perfection' for all family members. Mr. Hogan's children reveal that he began to gamble during his middle adult years and this was a source of tension within the family. His ex-wife had to sell their house to pay the significant gambling debts he accrued. Through collecting personhood information, staff learn that Mr. Hogan had few friends, other than gambling and drinking buddies. He owned his own garage business, and he had a circle of loyal customers, but otherwise spent much of his life working with little time spent socializing other than gambling on sports events. Over the past month, Mr. Hogan has become quite interested in a new resident, Mrs. Johnston. Before Mrs. Johnston moved into the home, Mr. Hogan spent much of his time walking up and down the hallways, sitting only short periods of time. He was in the habit of standing in a corner against the wall with his hands in his pockets just watching people going about their business. He would joke and smile a bit, but otherwise he spent his time alone, and did not tend to stay long at any social events involving co-residents.

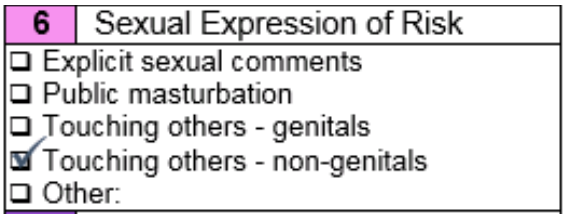
Now that Mrs. Johnston moved in, Mr. Hogan seems like a different person. He seeks her out, sits beside her on the couch across from the nursing station, and he likes to hold her hand. Mrs. Johnston's daughter thinks her mother has 'perked up' since meeting Mr. Hogan. Staff are wondering about how this relationship will develop and are concerned that Mr. Hogan might 'exploit' Mrs. Johnston in some way. Their relationship certainly seems like it is blossoming. About a week after their friendship begins, staff observe Mr. Hogan kissing Mrs. Johnston on the cheek and lips while the couple is watching television in the lounge together. The clinical team decides to complete a BSO-DOS© to gain specific data about the sorts of sexual behaviours that Mr. Hogan exhibits toward Mrs. Johnston. The team agrees to:

- Continue to view 'hand-holding' as a behaviour that represents friendship/courtship and is not a sexual expresssion of risk. However, they will document hand-holding to determine the frequency/duration of this behaviour and COMPARE/CONTRAST this positive engagement interpersonal activity to any sexual expressions of risk that might also be occurring concurrently.
- Add kissing under Positively Engaged 'Other' within the BSO-DOS© menu and request that when kissing is observed and recorded on the BSO-DOS© that staff also make a note in the progress notes describing the behaviour (including location and context).
- Document any additional behaviours as per #6 - Sexual Expression of Risk, that might appear during the five day observation period. The absence or presence of such behaviours will help the team determine how to interpret Mr. Hogan's blossoming relationship with Mrs. Johnston, and provide them with specific and systematically collected information upon which to base any discussions and decisions with the families.

After the five day observation period, the team reflects on the calculations in the analysis table, the highlighted data collection sheet, the recorded context information and the progress notes. This data reveal the following patterns:

- Mr. Hogan and Mrs. Johnston hold hands while sitting on the couch and walking in the hallway to and from the dining room or tv lounge, totalling an average of 5 hours per 24 hour period, mostly between the hours of 6 and 9 pm.
- Mr. Hogan is smiling and conversing with Mrs. Johnston, other residents and with staff frequently throughout the day.
- Mr. Hogan kisses Mrs. Johnston on the cheek and the lips when they area alone together in the tv room or on the couch across from the nurses station.
- Mr. Hogan's BSO-DOS© documents two, ½ hour blocks, separated by 48 hours during which time he was observed squeezing Mrs. Johnston's left knee, lifting her skirt slightly to do so. Both these episodes occurred in the hallway, on the couch, between 7 and 7:30 pm.





No other episodes of sexual expression observations have been documented either in the BSO-DOS© or the progress records. After validating the data with all staff members, the team identifies that Mr. Hogan has not displayed any behaviours that include:

- Explicit sexual comments.
- Public masturbation.
- Touching others – genitals (#6 - Sexual Expression of Risk).

In collaboration with the families, during separate meetings, the team concludes:

- Improved social relationship with co-residents and staff.
- Mitigated social isolation through/by friendship/courtship relationship developing between a single resident.
- Handholding, kissing and knee squeezing actions are to be considered evidence of positive social engagement.

Agreed upons next steps include:

- Team will continue to observe Mr. Hogan for newly emergent sexual behaviours that require further discussion and review.
- Team will re-introduce the BSO-DOS© with any emergence of new sexual behaviours. All team members are responsible for observing for the emergence of such behaviours.
- Recreational team members will provide Mr. Hogan and Mrs. Johnston opportunities to strengthen their social and friendship relationships by inviting them to attend events as a couple.

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A NOTE OF THANKS

Behavioural Supports Ontario and the DOS Working Group would like to note their deep gratitude to each team member who plays a part in gathering and utilizing the BSO-DOS© data, alongside essential personhood information, to inform person and family-centred care.

Thank you

to those that take the time to note the observed behaviours and relevant context.
This data collection is essential!

Thank you

to those that review and analyze the data collected.

Your number crunching and interpretation of the data is crucial in understanding what the data reveal about the individual living with dementia.

Thank you

to those that plan next steps with the individual and their family members.
These individualized approaches are vital in ensuring person and family-centered care.