BSO-DOS©

Behavioural Supports Ontario-Dementia Observation System©

RESOURCE MANUAL

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

https://brainxchange.ca/BSODOS

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

Contact Information

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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 persons living with dementia are complex human beings, as are we, and are interacting with the world around them and expressing themselves in many different ways.

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Version 2 of the Behavioural Supports Ontario-Dementia Observation System (BSO-DOS©) was made possible through the collaboration and expertise of the following contributors:

BSO-DOS© Advisory

The BSO-DOS© Advisory brings together those with leadership and expertise who are committed to the integrity and sustainability of the BSO-DOS©. As a steward of the tool, the Advisory ensures that the BSO-DOS© remains person-centred, feasible, accessible and clinically valuable in understanding responsive behaviours/personal expressions. Version 2 of the BSO-DOS© was developed based on the findings of a quality improvement project led by the Advisory.

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*Contributions made during the tenure of noted role

Additional Valued Contributors

Thanks to the following individuals and groups that contributed to the development of Version 2 of the BSO-DOS©:

- BSO Provincial Coordinating Office - with special thanks to Debbie Hewitt Colborne, Courtney Stasiuk-Mohr and Em Thielking
- BSO Knowledge Translation & Communications Advisory
- BSO Person Centred Language Advisory
- BSO Provincial Lived Experience Facilitators - Mary Beth Wighton & Dawn Baxter
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- Respondents (n= 36) to the 'Electronic BSO-DOS© Feedback Survey' (May 2024)
- Participants at the 'The BSO DOS©: Opportunities for Enhancements' Workshop at the Canadian Academy of Geriatric Psychiatry (CAGP) and Canadian Coalition of Seniors Mental Health (CCSMH) Annual Scientific Meeting (September 2024)

INTRODUCTION

History of the DOS

The Dementia Observation System (DOS) was first developed in the early 1990s at St. Peter's Hospital, a complex continuing care organization in Hamilton, Ontario. Members of the clinical team recognized the need for a systematic method to record and analyze behavioural symptoms experienced by older people living with dementia. They created the original DOS, then called the *Q30 Minute Check Sheet*. This tool was used to track the presence, frequency, duration and risk level of behaviours associated with dementia. It became apparent that the behavioural trends identified through reviewing the completed DOS helped the clinical team make decisions (e.g., adjusting medications, referring clients for assessment by external consultants, transferring clients to more appropriate care levels, educating families).

In 1998, the *Q30 Minute Check Sheet* was implemented in a Long Term Care Home in Hamilton, and its impact described in a paper titled *A Dementia Observation System: A Useful Tool in Discovering the Person Behind the Illness* in the journal Long Term Care (Schindel Martin, 1998). Subsequent to this, the tool became known as the DOS (Dementia Observation System) and it has been included as a data collection tool in the P.I.E.C.E.S.™ program since 1999.

Since then, the DOS has become widely used in the dementia care context in Ontario and beyond. In Canada, 88% of long term homes routinely utilize the DOS, and for 79% of homes, the DOS is their first choice of tool for behavioural assessment (Penko et al., 2020). With the spread of the tool came many adaptations of the tool. In 2019 a standardized version of the DOS was released called the Behavioural Supports Ontario-Dementia Observation System (BSO-DOS©). The development of the standardized BSO-DOS© was led by the Behavioural Supports Ontario (BSO) Provincial Coordinating Office and involved inter-professional collaboration and engagement of over 350 clinicians, educators and persons with lived experience (Hewitt Colborne et al., 2022). With a commitment to regular cycles of review and updates to the tool, Version 2 of the BSO-DOS© (2025) resulted from a quality improvement project led by the BSO-DOS© Advisory.

Purpose of the BSO-DOS©

Direct observation is the gold standard in behavioural assessment as it involves the objective collection of information by observing the person in their environment (Curyto et al., 2008; Macaulay, 2018; Woods & Buckwalter, 2018). The BSO-DOS© is a reliable direct observation tool that provides objective data about a person's behaviour every thirty minutes for 24-hours over five consecutive days (Newman et al., 2021). The data can be used to identify patterns, trends, and contributing factors associated with responsive behaviours/personal expressions, without the potential biases and errors in recall introduced by retrospective documentation techniques (Cohen-Mansfield & Libin, 2004; Woods & Buckwalter, 2018). This information is critical to the development and evaluation of tailored care plans to address unmet needs. Specifically, the data can inform non-pharmacological approaches (e.g., communication strategies, meaningful engagement, environmental adaptation), as well as measuring the impact of medications. The BSO-DOS© can be used to determine baseline behavioural patterns for those transitioning into a new environment, or to identify new patterns for persons with behavioural change. The BSO-DOS© provides a common language and measure for team members, organizations and sectors. It is an accessible method for recording behavioural observations in a manner that all members of the clinical team can directly participate in and contribute to better understanding the pattern of behaviours experienced by the person living with dementia.

The BSO-DOS© was developed specifically to assist in the assessment and care of persons living with dementia. However, clinical teams have found value in using the tool to identify behavioural patterns of persons with delirium, mental illness and other neurological conditions.

Understanding Behaviour

The terms 'responsive behaviours' or 'personal expressions' are preferred to describe the words and actions of a person living with dementia. With this lens, behaviours are seen as a form of meaningful communication, often expressing unmet needs (Livingston et al., 2014; RNAO, 2016). These responsive behaviours or personal expressions can be the result of changes in the brain that affect mood, judgment, perception, and memory, and also the person's social and physical environment (Canadian Coalition of Seniors' Mental Health [CCSMH], 2024). Reframing these behaviours as communication of unmet needs encourages reflection on the contributing factors behind a person's behaviour/expressions, prompting tailored approaches (BSO, n.d.).

Therefore, to understand behaviour, clinical teams must first recognize, empathize and identify the meaning that behaviours represent. Understanding behaviours requires assessment and critical thinking about the possible causes, for which the BSO-DOS© is a valuable tool. Two key steps of the BSO-DOS© are the analysis of the recorded information, followed by the discussion of the findings as a team to collectively plan next steps. It is so important to record observations as accurately and completely as possible, as missing information could lead to inaccurate conclusions.

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

What is the rhythm of the person's day?

- As the data is reviewed, patterns may emerge. These may be related to sleep, positive engagement (or lack thereof) and the times of day when behaviours are typically expressed, providing insights into the usual day of the person. This can help tailor approaches and timing of strategies.

Is there something that stands out when the completed BSO-DOS© is reviewed?

- Clinical judgment may identify patterns that are unique to the person, leading to the development of tailored, person-centred strategies and/or the recognition of the need for pain and symptom management. In some cases, clinical judgment and discussion with family members may lead to a combination of non-pharmacological and medication treatments.

Is this a new behaviour?

- Comparing recent BSO-DOS© data with a baseline picture collected at an earlier time period can help 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. Comparison of BSO-DOS© data can help expedite a treatment plan for situations that pose significant risk.

Has an intervention (e.g., a non-pharmacological approach, medication) been effective?

- Completing tracking before and after interventions will help to quantify changes occurring as a result, including improvements and side effects.

Is a specialized assessment required?

- The BSO-DOS© may identify risks and provide justification that additional specialized supports and/or a higher level of care are needed to assist with further assessment and treatment. The 'picture' created from the BSO-DOS© can supplement other documentation and provide specialized resources/units (e.g., Seniors' Mental Health, BSO, Behavioural Supports Unit and/or Tertiary Care Unit) with valuable information to understand the person and their care needs.

Personhood

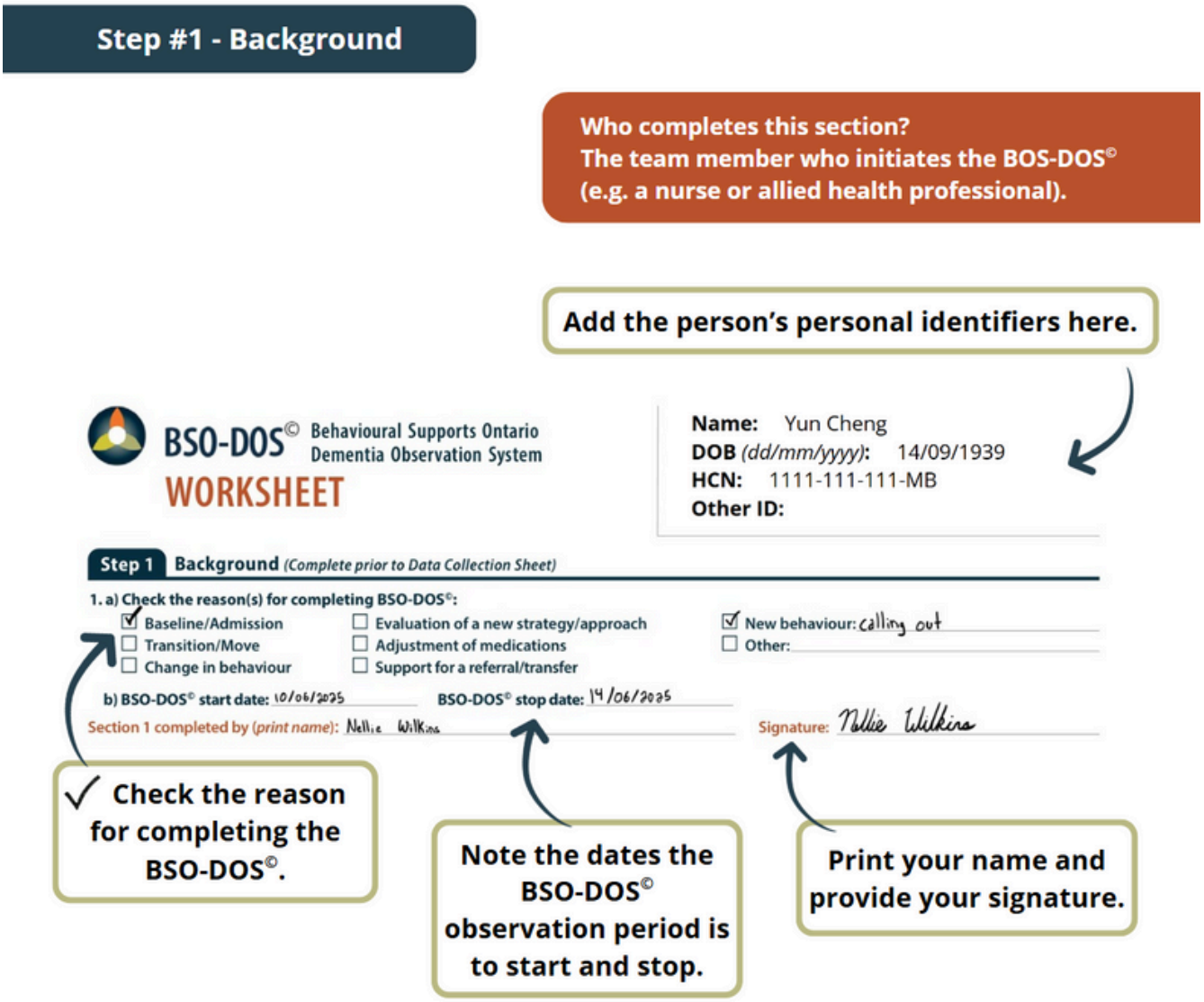
An essential part of providing person and family-centred care is knowing and viewing the person as a unique person (RNAO, 2015). The term 'personhood' in a caring relationship refers to the information about a person that leads to the recognition, respect and trust from one person to another, including their history, likes, dislikes, interests and usual routines (Kitwood, 1997; McCormack & McCance, 2017). Personhood information should be considered when understanding the contributing causes of responsive behaviours (CCSMH, 2024). Therefore, interpretation of the BSO-DOS© data should be completed in the context of personhood information. My Personhood Summary© is a tool to support clinical teams in the gathering of such information.

Completing the BSO-DOS©

Step #1: Background

This section provides a place for the team member initiating the BSO-DOS© to document the reason for completing the tool. This helps to communicate to the clinical team the rationale for the collection of behavioural observation data. The date that the BSO-DOS© is to be started and stopped is also recorded, providing clear expectations to the team.

Completing the Background Section:



Step #2: Complete the Data Collection Sheet

The *Data Collection Sheet* (page 2 of the BSO-DOS©) is completed by point-of-care team members to document observations every 30 minutes over a five-day period. Team members are asked to record the person's behaviour including their sleep-wake cycle, when the person is positively engaged, and when the person demonstrates responsive behaviours/personal expressions.

There are five broad categories of responsive behaviours/personal expressions included in the BSO-DOC©: repetitive vocal and motor expressions, and sexual, verbal, and physical expressions of risk. Before the BSO-DOS© is initiated, the team can add additional behaviours observed that are of interest, not already captured within the behavioural categories, to the legend.

The behaviour categories list specific behaviours. Only the numbers associated with the categories are to be noted within the *Observed Behaviour* column of the Data Collection Sheet. However, the specific behaviours can be checked off from the list provided within the legend when observed. This allows team members to know what specific behaviours were expressed over the five day period. Reviewing the selected boxes assists teams to evaluate the level of risk, as well identifying contributing factors and planning tailored approaches.

Details about context can also be recorded on the *Data Collection Sheet*. Adding relevant context information (e.g., behaviours expressed within the context of personal care) is not mandatory, but provides valuable information to those analyzing BSO-DOS© data to identify contributing factors. See page 17 for more details.

To meet documentation standards, team members that contribute to the *Data Collection Sheet* add their name and initials to the *Data Collection Table Contributors* section.

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 person 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).

	Observed Behaviour*	Context
D/M/Y	10/06/2025	
0700	1	
0730	2	
0800	4	C
0830	3	
0900	2	
0930	2	
1000	2	
1030	4 5	A

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.

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

Observed Behaviours
(For #3-8, check specific behaviours as you observe)

1 *(Blue)* **Sleeping**

2 *(Green)* **Awake/calm**

3 *(Green)* **Positively engaged**
- ☐ Conversing
- ☐ Hugging
- ☐ Singing
- ☑ Engaging in activity
- ☐ Kissing
- ☑ Smiling
- ☐ Laughing
- ☐ Other:
- ☐ Hand holding

4 *(Yellow)* **Vocal expressions (repetitive)**
- ☐ Asking questions
- ☐ Humming
- ☐ Requests
- ☐ Crying
- ☑ Moaning
- ☐ Sighing
- ☐ Grunting
- ☑ Repeating words
- ☐ Other:

5 *(Yellow)* **Motor expressions (repetitive)**
- ☑ Banging/rattling
- ☑ Fidgeting
- ☐ Rummaging
- ☐ Collecting
- ☐ Grinding teeth
- ☐ Trying to leave
- ☐ Disrobing
- ☐ Pacing
- ☐ Other:
- ☐ Entering others' spaces
- ☐ Rocking

6 *(Pink)* **Sexual expression of risk**
- ☐ Sexual comments/questions
- ☐ Self-pleasuring in others' presence
- ☐ Requesting sexual favours
- ☐ Sexual threats
- ☐ Unwanted touching
- ☐ Sexual gestures
- ☐ Forcing others into sexual acts
- ☐ Exposing genitals
- ☐ Other:

7 *(Purple)* **Verbal expression of risk**
- ☐ Derogatory insults
- ☐ Swearing
- ☐ Other:
- ☑ Screaming/yelling
- ☐ Threatening

8 *(Orange)* **Physical expression of risk**
- ☐ Biting
- ☐ Kicking
- ☐ Self-injuring
- ☐ Choking others
- ☐ Pinching
- ☐ Spitting
- ☐ Grabbing
- ☐ Punching
- ☐ Throwing
- ☐ Hair pulling
- ☐ Pushing
- ☐ Other:
- ☑ Hitting/slapping
- ☐ Scratching

9 Other:

10 Other:

Context
- A: Alone
- C: Personal Care (e.g. bathing, incontinent care, toileting)
- F: Family/visitors present
- L: Loud/busy environment
- Q: Quiet environment
- R: Expressions directed at Resident/patient/visitor(s)
- S: Expressions directed at Staff
- X: Other: Pain medication given
- Y: Other:

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

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 Behaviour Definitions

1. Sleeping

The individual is located in bed or seated in a chair 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.

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).

The individual is sitting quietly, standing, foot-propelling, or walking in a calm manner. The individual is not engaged in any particular activity. They may be alone or in an area with others, with minimal interaction observed. The individual is observing their surroundings, but is not an active participant.

3. Positively Engaged

While the individual is awake and calm, they may become engaged in an interaction or purposeful activity, alone or with others. The individual demonstrates interest and/or sustained attention, and is typically involved in pro-social exchanges or reciprocal interactions with other individuals.
The social contact can take many forms: face-to-face, one-to-one, with family, peer conversations, telephone/video calls, animal/pet therapy, or group interactions. The individual may be participating in structured or unstructured activity, in conversation and/or expressing positive comments, holding another person's hand or hugging someone to demonstrate affection, partaking in singing with others, and/or 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. 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.

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 demonstrates sustained attention during the verbal interaction.

Engaging in activity: The individual is involved in an activity, one-to-one or with others, participating in physical exercise, sensory enhancement or relaxation exercises (e.g., hand massage, art therapy, multi-sensory room, and aromatherapy), Montessori-based activities, musical activities (e.g., music group, individual listening using headphones), pet therapy, simulated presence therapy (audio or visual) and/or other social events.

Hand holding: The individual is consensually making physical contact with another person's hand(s), demonstrating affection or admiration.

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

Kissing: The individual's lips touch the cheek or lips of another person as a sign of a positive interaction, 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 expression of risk).

Laughing: The individual is expressing 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. It is usually accompanied by characteristic facial and bodily movements such as smiling and shining eyes.

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

Smiling: The individual is demonstrating a facial expression in which the eyes brighten and the corners of the mouth curve slightly upward, expressing pleasure, approval or amusement in response to stimuli.

Examples for 'Other' Positively Engaged Behaviours:
Dancing: The individual is moving their body rhythmically or feet in a sequence of steps, alone or with another individual or group of persons, with or without the accompaniment of music.

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 that they are having with others.

4. Vocal Expressions (Repetitive)

These expressions are repetitive in nature and involve 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). Although not threatening in nature, the behaviour can be an indication of distress, and may disturb those around them. The individual appears to convey feelings or be goal-directed, such as 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.

Asking Questions: The individual is using a 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 (e.g.,"Where is my car?", "Have you seen my husband?" or "When is lunch?").

Crying: The individual is producing tears from the eyes, often while making loud sighs due to physical pain or discomfort, sorrow or other strong emotions that are being experienced.

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

Humming: The individual is making a low continuous sound, often with a melody, while keeping the mouth opened or closed.

Moaning: The individual is making a prolonged, low, inarticulate sound - typically to express pain, unhappiness, or another strong emotion.

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

Requests: The individual is making a statement to express a need, such as accessing or avoiding a person, activity or item (e.g.,"Can I go home?", "I want my breakfast" or "You stop that!").

Sighing: The individual is exhaling audibly a long, deep breath - typically to express weariness, despair or relief.

Examples for 'Other' Vocal Expressions:
Clicking sounds: The individual is clicking their tongue or makes a slight sharp noise/speech sound with the tongue.

Atypical Laughing: The individual is expressing 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 or understood by others.

Talking loudly: The individual is uttering words or sentences in a loud voice.

5. Motor Expressions (Repetitive)

These expressions are repetitive in nature and involve motor behaviours. The behaviour may be goal-directed where the individual is attempting to perform or accomplish activities to communicate an unmet need, self-soothe, get somewhere familiar or comforting, or reconfigure their environment. The behaviour may disturb others, and can be an indication of distress for the person and pose risk.

Banging/Rattling:
Banging: The individual is striking or putting down an item or body part (e.g., hand) forcefully (e.g., table or wall) - typically to express anger or in order to attract attention.
Rattling: The individual is making a rapid succession of short, sharp movements with an item, creating a sound.

Collecting: The individual is gathering or collecting items, which they may experience difficulties parting with. Accumulating items may be placed in one location or scattered throughout an area.

Disrobing: The individual is removing clothing where the underclothes or bare skin is exposed. This may impact their dignity when in the sight of others.

Entering other's spaces: The individual is entering spaces such as a team station or bedroom of another person without agreement from the occupant. The individual may enter these spaces by ambulating or propelling oneself in a wheelchair. They may also position themselves in very close proximity to another person, or follow a person into a private space (e.g., bathroom or bedroom) without their agreement.

Fidgeting: The individual is making small movements - especially of the hands and feet, over a brief period of time. This may include moving around in their seat or wheelchair, standing up and down or moving an item repetitively with their hand.

Grinding teeth: The individual is clenching the upper and lower teeth or dentures together and sliding them backwards and forwards over each other.

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 and be unwilling to rest or engage in another task.

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

Rummaging: The individual is going through items, searching for something. This may involve moving items and looking into, under, and behind furniture, drawers and shelves.
Trying to leave: The individual is attempting to leave their current environment or get from one place to another. In doing so, they may touch doorknobs, bang on door(s), walk from door to door, try to open each door, wait by entrance/exit door or try to exit when the door opens. The motor behaviour is goal-directed where the individual is seeking another setting and/or person.

Examples for 'Other' Motor Expressions:
Barricading doors: The individual is moving an item/object in front of a door with the intent of making it difficult for others to enter or exit the space.

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

6. Sexual Expressions of Risk

Sexual expressions or risk include verbal and physical sexual expressions that are considered intrusive and/or those that are expressed without the consent of the intended individual. An individual can exhibit these behaviours towards co-clients of all genders, family members, staff and any other individuals within a setting, in which case the relevant selection must be made from the Context variables and documented in the Context Column. Not all sexual expressions are sexual expressions of risk. Care should be taken when completing the data collection sheet to ensure that sexual expressions that **do not** pose a risk to the person expressing them or others (e.g., masturbating in a private space) are not documented in this category.

Sexual comments/questions: The individual uses explicit or graphic language to talk about sexual acts in a non-sexual setting (e.g., describing a sexual fantasy in detail to a group of volunteers) or poses unwelcome, personal or intimate questions about someone's sex life or preferences (e.g., asking a healthcare provider if they had sex the night before).

Requesting sexual favours: The individual asks someone for sexual activity in a way that is unwanted (e.g., asking a healthcare provider for oral sex).

Sexual threats: The individual uses graphic language to threaten or intimidate someone with the possibility of sexual violence or unwanted advances (e.g., stating they will sexually harm another person if they don't do what they are requesting).

Sexual gestures: The individual uses body movements and/or hand signals to imitate sexual acts, often directed at someone else (e.g., pretends to grab breasts with their hands).

Exposing genitals: The individual shows their genitals to others in a way that makes them feel uncomfortable or upset (e.g., pulls down pants and underwear during a recreational activity).

Self-pleasuring in others' presence: The individual touches themself for sexual pleasure while others are around (e.g., masturbates under the table in the dining room).

Unwanted Touching: The individual makes physical contact with someone in a way that makes them uncomfortable or upset (e.g., rubs another person's inner thigh even after the person tries to push them away).

Forcing others into sexual acts: The individual uses strong physical contact to make someone engage in unwanted sexual activity (e.g., grabs a co-resident by the back of their head and pulls them towards their genitals without consent).

7. Verbal Expressions of Risk

Verbal expressions of risk behaviours are those that negatively impact the social environment and thus represent potential risk, especially if they occur for prolonged periods.

Derogatory insults: The individual verbally expresses a negative statement towards another individual (co-clients, staff, family member and/or visitor) that is disrespectful, demeaning or unflattering. The insulting comment may be made in reference to a person's physical appearance or manner of speech, race, sex, gender, sexual orientation, or disability.

Screaming/Yelling: The individual utters sounds or words in a raised volume and in an angry or shrill tone, that may be directed towards another individual or group of people.

Swearing: The individual uses words considered to be rude or offensive in order to express anger or other strong emotions. The volume of their voice may be loud and in a sharp tone.

Threatening: The individual utters words indicating their intent to commit harm towards an individual or group of people.

Examples for 'Other' Verbal Expressions of Risk:
Verbalizing Desire to Self-harm: The individual makes comments about wanting to die, asks to die, and/or threatens to harm or kill themselves.

8. Verbal Expressions of Risk

Physical expressions of risk have the potential for physical injury and/or psychological trauma.

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

Choking others: The individual grabs another person's throat region and squeezes to hinder the person's breathing.

Grabbing: The individual makes contact and holds onto another person or item. This can be directed at a body part, hair, or clothing.

Hair pulling: The individual grabs a person's hair and pulls.

Hitting/Slapping: The individual moves their open hand in quick motion and uses force, makes contact with a person.

Kicking: The individual moves their foot in a sudden forceful thrust, making contact with an object or person.

Pinching: The individual uses their two fingers to grab a piece of skin of another person and squeezes the skin together causing harm.

Punching: The individual uses a closed fist to strike a person or object.

Pushing: The individual extends one or both arms in a fast forward motion attempting to physically move an individual or object.

Scratching: The individual scrapes their fingernails against the skin of another person to cause harm.

Self-injuring: The individual deliberately 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, intentionally drinking poisonous substances, obtaining a lighter and attempting to burn oneself, etc.

Spitting: The individual expels saliva from their mouth, aimed at another person.

Throwing: The individual picks up an object and propels it with force through 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 applies pressure with their fingernails into another person's skin

9 &10. Examples of Additional Behaviour

This section can be used to collect information about one or two behaviours that are not included in the above sections. The "Other" category can be used to focus on a specific behaviour (e.g., Crying) from a behaviour category (Vocal Expressions). For instance, it may be identified that the individual demonstrates several behaviours in the Vocal Expressions section (e.g., Crying, Grunting, and Humming); however, if the team is particularly interested in recording crying episodes and identify this as '#9 - Other', while continuing recording Grunting and Humming under '#4 - Vocal Expressions'.

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.

Examples include:
(Acting) Suspicious of others: The individual is responding in a way that suggests that they are suspicious of someone/something doing something of concern (e.g., having an affair, stealing money or attempting to poison others). This may include a family member, co-resident or clinical team member. These concerns may be verbalized or demonstrated through actions (e.g., hiding items, barricading doors).

(Reacting to) Visual hallucinations: The individual is responding to someone or something that others do not see. This may include pointing or reaching out to grab things in the air, bending down to reach for something or verbalizing about what they see.

(Reacting to) Auditory hallucinations: The individual is responding to someone or something that others do not hear. This may include calling out to someone who is not there or verbalizing about what they hear.

Drowsy/Somnolent: The individual is lethargic/sluggish, 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 using their hands or fingers to apply stool to surfaces within their environment (e.g., bed sheets, bed rails, wheelchair, walls, floors).
Voiding/defecating in unusual places: The individual defecates or voids in areas besides the toilet (e.g., garbage can, sink).

Medication refusal: The individual is refusing to take prescribed medication, saying "no," refusing to open their mouth to ingest the medication, spitting out the medication or hiding the medication.

Context

It can be complex to identify underlying cause(s) of behaviours, especially if the person has difficulty communicating the reason for their distress (Woods & Buckwalter, 2018). As biological, psychosocial and environmental factors are often the causes of responsive behaviours, it is important to know the context in which the behaviour occurs (CCSMH, 2024; Woods & Buckwalter, 2018). Assessing context involves monitoring changes in a person's environment, health and medications which can directly impact cognition, mood and behaviour. Adding contextual information to the BSO-DOS© such as what is happening in the person's environment and who was present helps to identify contributing factors of behaviours. Doing so assists with developing individualized psychosocial approaches (Hall & Buckwalter, 1987, as cited in Woods and Buckwalter, 2018).

Biological Factors to Consider:

- Delirium
- Dementia
- Medication changes, withdrawal or adverse effects
- Infections
- Injuries
- Dehydration
- Sleep pattern disturbances
- Elimination pattern changes (e.g., constipation, urinary frequency or retention)
- Hearing and vision limitations
- Onset of a new medical condition or worsening of a chronic illness
- Nutritional status changes (e.g., decreased or increased appetite)

Psychosocial Factors to Consider:

- Psychosis
- Anxiety
- Depression
- Inability to express needs
- Loneliness, social isolation
- Lack of socialization opportunities
- Manifestation of grief or loss
- Loss of autonomy
- Lack of validation

Environmental Factors to Consider:

- Room change or relocation
- Changes in care or daily routine
- Noisy or congested environments
- Lack of meaningful activities
- Lack of exercise
- Changes in staff
- Changes in family situations or social settings
- Adjusting to peers and communal living

Context Definitions

A - Alone: In a space by themselves. Unaccompanied or without companionship.

C - Personal Care: Interactions when being assisted with hygiene or other physical care needs (e.g., bathing, incontinent care, perineal care, dressing, toileting, oral care).

F - Family/visitors present: Social encounters with family, friends, co-residents, volunteers, pet therapy, spiritual care or a paid companion.

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 patterns or excessive décor.

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

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

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]: The behaviour occurred in a context other than those listed above. (e.g., medication administered for pain or a behaviour, incontinence of stool, food/drink provided, outside).

Step #3: Analysis & Planning

Highlighting the Data Collection Sheet

After completion of the *Data Collection Sheet*, highlight the numbers according to the colour-coded Observed Behaviours Legend in order to identify patterns. See page 26 for details regarding the kinds of patterns that can be identified through review of the highlighted *Data Collection Sheet*.

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

- Leave #9 and/or #10 white
- Assign #9 and/or #10 colours that are already in the *Observed Behaviours Legend* that best aligns with the behaviour(s)
- Assign the category an additional colour/shade that is not included in *Observed Behaviours Legend*

Analysis Table

The *Analysis Table* of the BSO-DOS© 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 the behaviour(s) of interest occur each day?**
Task	**Count the number of ½ hour blocks for each day that behaviour(s) of interest were observed.**

Count the number of half-hour blocks in which each of the behaviour(s) of interest were observed, for each of the five days on the *Data Collection Sheet*. For example, if a behaviour of interest was #4, Vocal Expressions, count the number of #4s in the first column of the data collection sheet. Enter that number under the *'Day #1'* column in the *'#4 Vocal Expressions''* row, then repeat for the following days. Repeat this for any remaining behaviours of interest (e.g. Sleep, Positively Engaged, Motor Expressions) to complete the *'Total the blocks for each day'* section of this table. This provides the number of ½ hour blocks in which the behaviour occurred each day. See example on the next page.

	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 number of 1-hour blocks per day (Divide the total blocks by 10. Hint: move the decimal one space left.)	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	20	19	22	24	20	=		÷10		☐	☐	☐
2 Awake/Calm	22	21	13	14	20	=		÷10		☐	☐	☐
3 Positively Engaged	3	3	1	3	3	=		÷10		☐	☐	☐
4 Vocal Expressions	3	5	9	6	4	=		÷10		☐	☐	☐
5 Motor Expressions	1	1	2	1	1	=		÷10		☐	☐	☐
6 Sexual Expression of Risk						=		÷10		☐	☐	☐
7 Verbal Expression of Risk	0	1	3	0	1	=		÷10		☐	☐	☐
8 Physical Expression or Risk	0	0	1	0	0	=		÷10		☐	☐	☐
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

Clinical Question #2

Is the frequency of the behaviour(s) of interest increasing, decreasing or remaining consistent across the five days?

Task

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

Look across the completed rows of the *'Total the blocks for each day'* table to see if the behaviour(s) of interest occur a similar number of times each day, or whether the frequency behaviour is changing across the five days. Refer back to the colour-coded *Data Collection Sheet* for insight into whether a particular behaviour occurs at the same times each day.

Clinical Question #3

How many times did the behaviour(s) of interest occur over the five day observation period?

Task

Add up the number of blocks for each behaviour of interest over the five day observation period.

Calculate the total number of half-hour blocks in which each behaviour of interest occurred over the five day observation period. For each behaviour of interest, add the numbers entered in a given row from Day #1 to Day #5. Put that total in the next cell after the equal sign, in the *'Total the ½ hour blocks'* column. See example on the next page.

	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 number of 1-hour blocks per day *(Divide the total blocks by 10. Hint: move the decimal one space left.)*	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	20	19	22	24	20	=	105	÷10		☐	☐	☐
2 Awake/Calm	22	21	13	14	20	=	90	÷10		☐	☐	☐
3 Positively Engaged	3	3	1	3	3	=	13	÷10		☐	☐	☐
4 Vocal Expressions	3	5	9	6	4	=	27	÷10		☐	☐	☐
5 Motor Expressions	1	1	2	1	1	=	6	÷10		☐	☐	☐
6 Sexual Expression of Risk						=		÷10		☐	☐	☐
7 Verbal Expression of Risk	0	1	3	0	1	=	5	÷10		☐	☐	☐
8 Physical Expression or Risk	0	0	1	0	0	=	1	÷10		☐	☐	☐
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

Clinical Question #4

How often were the behaviour(s) of interest observed daily on average?

Task

Convert the total ½ hour blocks for each behaviour of interest into the average hours by dividing the total blocks by 10.

Divide the number for each row in the '*Total the ½ hour block*' column by 10 for each of the observed behaviors of interest. The formula is:

$$\frac{\text{((Day 1) + (Day 2) + (Day 3) + (Day 4) + (Day 5))}}{\text{10}} = \text{Average 1-hour blocks per day the behaviour occurred}$$

However, you can calculate this simply by moving the decimal point one space to the left. This will calculate the average number of 1-hour blocks that the behaviour occurred per day. See example on the next page.

	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 number of 1-hour blocks per day (Divide the total blocks by 10. Hint: move the decimal one space left.)	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	20	19	22	24	20	=	105	÷10	10.5	☐	☐	☐
2 Awake/Calm	22	21	13	14	20	=	90	÷10	9.0	☐	☐	☐
3 Positively Engaged	3	3	1	3	3	=	13	÷10	1.3	☐	☐	☐
4 Vocal Expressions	3	5	9	6	4	=	27	÷10	2.7	☐	☐	☐
5 Motor Expressions	1	1	2	1	1	=	6	÷10	0.6	☐	☐	☐
6 Sexual Expression of Risk						=		÷10		☐	☐	☐
7 Verbal Expression of Risk	0	1	3	0	1	=	5	÷10	0.5	☐	☐	☐
8 Physical Expression or Risk	0	0	1	0	0	=	1	÷10	0.1	☐	☐	☐
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

In the example above, when all the ½ hour blocks when #4-Vocal Expressions occurred are added together, the total number of ½ hour blocks is 27. The 27 half hour blocks divided by 10 equals 2.7. This is the average number of 1-hour blocks the behaviour occurred each day.

For ease of calculation and interpretation, the number of hours, rather than ½ blocks is calculated in the column. This is why the '*Total number of ½ hour blocks*' is divided by 10, rather than 5, for the 5 days.

Clinical Question #5

Do the behaviour patterns and frequencies indicate clinical concerns, and if so, why?

Task

Review the completed *Analysis Table* and highlighted *Data Collection Sheet* to assess for concerns.

Examine the completed *Analysis Table* and the highlighted *Data Collection Sheet* to determine if each behaviour poses a clinical concern due to the frequency or duration of occurrence (e.g., behaviour that occurs often and/or lasts for an extended period of time), or the level risk associated with it (e.g., poses significant risk to the individual or to others). Check off the associated box(s) on the far right of the *Analysis Table*. Doing so provides insight to the clinical team into the priority areas for interventions aimed to prevent and/or decrease these specific behaviours. See example on the next page.

	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 number of 1-hour blocks per day *(Divide the total blocks by 10. Hint: move the decimal one space left.)*	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	20	19	22	24	20	=	105	÷10	10.5	☐	☐	☐
2 Awake/Calm	22	21	13	14	20	=	90	÷10	9.0	☐	☐	☐
3 Positively Engaged	3	3	1	3	3	=	13	÷10	1.3	☐	☐	☐
4 Vocal Expressions	3	5	9	6	4	=	27	÷10	2.7	☑	☑	☐
5 Motor Expressions	1	1	2	1	1	=	6	÷10	0.6	☑	☐	☐
6 Sexual Expression of Risk						=		÷10		☐	☐	☐
7 Verbal Expression of Risk	0	1	3	0	1	=	5	÷10	0.5	☑	☐	☐
8 Physical Expression or Risk	0	0	1	0	0	=	1	÷10	0.1	☐	☐	☐
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

Completing the Analysis Table

Step #3 - Analysis & Planning

Before starting this section:
Highlight the numbers on the Data Collection Sheet according to the colour coded 'Observed Behaviours' legend.

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).

Add up the number of blocks for each behaviour of interest 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.

Count the number of 1/2 hour blocks for each behaviour of interest for each day.

3. a) Highlight the numbers on the Data Collection Sheet according to the colour-coded legend in order to identify patterns
b) Use the table below to calculate how often per day the behaviour(s) of interest occurred *(not every row needs to be calculated)*.

	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 number of 1-hour blocks per day (Divide the total blocks by 10. Hint: move the decimal one space to the left.)	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	20	19	22	24	20	=	105	÷10	10.5	☐	☐	☐
2 Awake/Calm	22	21	13	14	20	=	90	÷10	9.0	☐	☐	☐
3 Positively Engaged	3	3	1	3	3	=	13	÷10	1.3	☐	☐	☐
4 Vocal Expressions	3	5	9	6	4	=	27	÷10	2.7	☑	☑	☐
5 Motor Expressions	1	1	2	1	1	=	6	÷10	0.6	☑	☐	☐
6 Sexual Expression of Risk						=		÷10		☐	☐	☐
7 Verbal Expression of Risk	0	1	3	0	1	=	5	÷10	0.5	☑	☐	☐
8 Physical Expression or Risk	0	0	1	0	0	=	1	÷10	0.1	☐	☐	☐
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

Table completed by (*print name*): Nellie Wilkins Signature: Nellie Wilkins

Print your name and provide your signature.

Based on the BSO-DOS© data, check any concerns related to frequency, duration or risk related to the observed behaviours.

Documenting a Progress Note

Document the outcome of the BSO-DOS© in your organization's clinical record upon completion of the BSO-DOS©.

To do so, start by providing **a summary of the completed *Analysis Table***. This should include the key findings based on the calculations (e.g., the average numbers of 1-hour blocks per day that behaviours of interest [sleep, physical expressions of risk and positively engaged] occurred). Note any behaviours where there are concerns identified in relation to frequency, duration and/or risk.

Next, note **what the BSO-DOS© data reveal** based on the quantitative results from 1) the *Analysis Table*, 2) patterns revealed from the highlighted *Data Collection Sheet*, and 3) the context collected. This may include:

- The types of behaviours expressed - both the behavioural category and specific behaviour (e.g., verbal expressions of risk expressed, and included swearing and threatening).
- The context in which the behaviours occur.
- The patterns identified:
  - Certain behaviours occur together or in close proximity (e.g., physical expressions of risk follow verbal expressions of risk, therefore making verbal expressions of risk a sign that physical expressions of risk may follow).
  - Specific behaviours occur more or less often on weekends vs. weekdays or in the presence of specific people.
  - The behaviour occurs over several ½ hour blocks in a row or at the same time each day (e.g., at noon, in the evening). In these instances, provide what else happens at, or just before, this time (e.g., a meal, waking up, shift change, or a regular visit from a family member).
  - Specific context often accompanies particular behaviours (e.g., personal care).
- The time of day a behaviour occurs.
- The quality of the individual's sleep and how it relates to specific behaviours (e.g., broken sleep, behaviours not occuring when additional rest time occurs).
- Any changes from prior BSO-DOS© (e.g., improvement or worsening of behaviours).

Analysis of the data should also correspond to the intended reason for completing the BSO-DOS©:

- What has been learned about this individual who has recently moved in? (e.g. they are rarely positively engaged)
- What was learned about the perceived change in behaviour that prompted the completion of the BSO-DOS©?
- Was a new strategy/approach successful?
- Did a medication adjustment have any effect?
- Is a referral needed for a higher level of assessment and care?

Note **possible causes and contributing factors** based on the data collected. When considering the causes and contributing factors to behaviours, review the context information gathered on the *Data Collection Sheet*, as well as any known personhood information. Data from other clinical tools such as ABC (Antecedent, Behaviour and Consequence) charting, medication records and pain scales may also be beneficial.

Finally, document the planned **next steps** based on the results of the BSO-DOS©. Ideally, the clinical team and family care partners review the BSO-DOS© findings together and collaboratively determine these next steps. These may include:

- New non-pharmacological strategies
- Medication adjustment/review
- Care plan update
- Referral(s) initiated
- Clinical huddle/meeting: share results and updates to plan
- Consult/meet with Substitute Decision Maker (SDM)
- Start ABC charting around particular events/behaviour
- Continue BSO-DOS© for another 5 days
- Repeat BSO-DOS© starting on a specific date

See example on the next page.

New Progress Note

Resident: Cheng, Yun

Type: Responsive Behaviours/Personal Expressions

Date: 15/06/2025 13:00

Note:

BSO-DOS© completed 10/06/2025 - 14/06/2025. Paper copy scanned to chart.
Summary of Analysis Table:

- Concerns identified in relation to frequency and duration of Vocal Expressions (2.7 blocks per day) , frequency for Motor Expressions (0.6 blocks) and frequency for Verbal Expressions of Risk (0.5 blocks).

The BSO-DOS© data reveal the following:

- Repetitive vocal expressions typically occur when resident is alone – mostly the morning when she gets out of bed and after meal times.
- When resident has poor sleep the night before, these vocal expressions are more likely to escalate into verbal and physical expressions of risk.
- When resident is positively engaged, she expresses less responsive behaviours.
- On average, resident was positively engaged during 1.3 one-hour blocks per day.

Identified possible causes and contributing factors:

- It is stressful for resident to be alone. She is used to having a lot of family around.
- Resident sleeps better when she has pain medication at bedtime. This was not given the night she slept poorly.
- Resident may need more time engaged in activities that are meaningful.

Planned next steps:

- Writer to request MRP to change pain medication to a scheduled dose in the evening, rather than prn. Pain to be assessed each shift.
- Team members to turn on the radio in resident's room at 0730, as this is when resident often starts to call out.
- Team and family to promote meaningful activities. Team to trial a new activity whereby they provide resident with white, non-toxic playdough to simulate dumpling dough. After each meal, a team member to provide Mrs. Cheng with the playdough and a tray from home. Family members plan to visit her during these times to make the dumplings together.
- Care plan updated as per above.
- Writer will initiate another BSO-DOS© (17/06/2025 - 21/06/2025) to measure the outcomes of these new approaches.

Created By: Nellie Wilkins, RN

User Guide

The BSO-DOS© User Guide provides a quick reference for direct care staff on how to complete the BSO-DOS©. Clinical teams may find it helpful to print and laminate copies to refer to in the moment as they complete the tool.

Find the four page User Guide, along with other resource about the BSO-DOS© at: www.brainXchange.ca/BSODOS

FREQUENTLY ASKED QUESTIONS

1. **How long does the BSO-DOS© observation need to continue?**
   The BSO-DOS© is designed to be completed over 5 days. In Step 1, under the '*Background*' section, the BSO-DOS© start and end date is recorded. This ensures all team members are clear on the length of time the data collection should continue. After completion of Step 3: *Analysis and Planning*, it may be decided to continue the observation period for another 5 days.

2. **The columns on the BSO-DOS© Data Collection Table span over 2 days. Shouldn't each column reflect the true 24 hour clock?**
   Each column of the BSO-DOS© Data Collection Table reflects a full 24 hour period. It starts at 0700 and ends at 0630 in order to capture typical sleep time in one visual block. This structure allows sleep patterns to emerge, especially once the data is highlighted. This has been prioritized because sleep quality is an important part of identifying contributing factors of responsive behaviour. If the columns were laid out to finish at the end of the 24 hour clock (i.e. 2330), the overnight would be split within 2 days, impacting the ability to visually see sleep patterns. As the columns capture 24 hours over 2 days, record the date associated with the 0700 start time of that column within the 'D/M/Y' box (e.g. 17/12/25). Alternatively, teams can record two days within the 'D/M/Y' box (e.g. 17-18/12/25).

3. **It is really challenging to record information every half hour. How can I ensure the data recorded is complete and accurate?**
   Ideally observations are documented every half hour when they take place. However, if documenting this frequently is not feasible, consider breaking the day into more manageable chunks of time (e.g. 2 hour blocks). During these 2 hour blocks, write down any behaviours seen and the time on a piece of notepaper. Then, transfer this informal documentation onto the BSO-DOS© *Data Collection Sheet* at the end of the 2 hours. Avoid waiting until the end of the shift to document on the BSO-DOS© as retrospective reporting is often inaccurate. Recording observations in a timely and accurate way plays an essential role in the team's ability to assess and care plan in a meaningful way.

4. **What happens if more than one behaviour occurs in the same time block? Is only the most disruptive or risky behaviour recorded?**
   If multiple behaviours occur in the same block, record them both. Behaviours can be listed in the order in which they are observed, or from highest- to-lowest to express level of risk. This ensures an accurate analysis of all behaviours occurring and helps to better identify patterns. For example, if motor expressions (repetitive) typically occur at the same time as verbalexpressions of risk, knowing this allows for the recognition that when the motor expression begins, there is an opportunity to intervene before the behaviour escalates into verbal expressions of risk.

5. **Does documentation of the behaviours only need to be recorded on the BSO-DOS©?**
   The BSO-DOS© allows for quantitative data to be recorded, in order to identify concerns relating to frequency, duration and/or risk of behaviours, as well as identify patterns to better understand the meaning of the behaviours. However, it collects limited contextual information and does not include documentation of the care provided, nor the response to approaches used. Therefore, it is recommended that progress notes also be completed, aligning with your organization's documentation policies, to provide further details (e.g., what happened before, during and after the behaviour, and the approaches used and their outcomes). This additional documentation is extremely valuable when identifying contributing factors and tailoring strategies to prevent or decrease severity of the behaviours.

6. **Why is "resisting care" not in the legend?**
   Many people living with dementia experience distress during personal care (Lee et al., 2024), as it involves care providers undressing the person and assisting in washing private areas when the person may not understand why this is taking place. Understandably this can create confusion and/or fear that results in protective behaviours. When analyzing situations that evoke responsive behaviours, it is important to know more specifics about how the person is displaying their distress, rather than using a general term such as "resisting care". Therefore, the BSO-DOS©'s *Observed Behaviours Legend* includes specific behaviours that help teams understand the behaviour, determine the level of risk, and develop tailored strategies to prevent or reduce distress and associated risks. For example, at 0800 it is recorded that the person had verbal and physical expressions of risk '7 & 8' within the '*Observed Behaviour*' column, and *'swearing'*, *'pushing'* and *'hitting'* are checked as specific behaviours. 'C' is recorded in the *'Context'* column to indicate that these behaviours occurred during personal care.

7. **What is the value in checking the specific behaviours (listed under the *'behaviour'* category in the legend) if the team doesn't know exactly when they occur?**
   It is true that the completed BSO-DOS© doesn't indicate when specific behaviours (e.g., hitting, pinching) occur, but rather just the behaviour category (e.g., physical expressions of risk). Adding this level of detail within the half hour blocks would compromise the ease of use of the tool, both in collecting and analyzing the data. 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. **If the person can not be observed, such as being off-site with a family member, what is recorded in those time blocks?**
   When a person is unable to be observed, simply draw a line through the '*Observed Behaviour*' block(s). Within the '*Context legend*', add 'off-site' to X or Y, and then note that letter within the 'Context' column during the time the person is away.

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

   Adding a new behaviour under #9 or #10 after the *Data Collection Shee*t has been started will not provide accurate, useful data. If a new behaviour of interest is identified during the 5 day data collection period, the team may decide to document occurrences of the new behaviour within progress notes and use this information in the BSO-DOS© analysis. As part of '*Next Steps*' section in the BSO-DOS©, the team may then decide to initiate another BSO-DOS© to properly track that new 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. Alternatively, the team may decide to restart a new BSO-DOS© upon identification of the new behaviour of interest in order to accurately and fully capture its occurrence.

10. **What do I do if I don't know how to code the behaviour I just saw? In these situations, what should be recorded?**

    Depending on your location or setting, the ideal answer would be to ask a clinical leader or educator for their assistance. If that is not possible, we ask that you leave the time block blank, tell your team lead and write a progress note describing what occurred. Even though you left the time block blank you are still providing details to the team member(s) analyzing the BSO-DOS© data through your progress notes.

11. **If more than one number is recorded in the half hour blocks, how do I complete the *Analysis Table*?**

    We expect people to display more than one behaviour in a half hour. Include each behaviour that occurred in the '*Total blocks for each day*' column of the *Analysis Table*, even if there are multiple in each time block. There is no expectation that the final column in the *Analysis Table* adds up to 24 (corresponding to the 24 hours). This data remains accurate as the final calculation is the average number of 1-hour blocks per day that the behaviour occurred, not the average hours per day it occurred.

12. **Why is the final calculation for the average number of 1-hour blocks the behaviour occurred in per day, and not the average hours of day the behaviour occurred?**

    Many behaviours are episodic, and do not occur throughout the entire half hour block that they are documented in. This is specifically true for verbal/physical/sexual expressions of risk where it is important to document their occurrence, despite only occurring momentarily. Therefore, it would be inaccurate to claim these behaviours span the entire time block. By calculating the blocks during which the behaviour occurred, it is still possible to quantify their occurrence within the BSO-DOS©. If it is beneficial to the care team to more precisely document the exact length of time a behaviour occurs, this can be done in a progress note.

CASE STUDIES

Case Study #1 - Mrs. Cheng

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. She has a diagnosis of mixed dementia and now requires a wheelchair as she can no longer walk. She is able to engage in simple conversation, mostly using one or two words. Through collecting personhood information, the team learns 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 are many 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 better understand the timing, context, and any patterns around these times of distress.

Below is Step 1, the *Background* section, of the completed BSO-DOS©.

Step 1 **Background** *(Complete prior to Data Collection Sheet)*

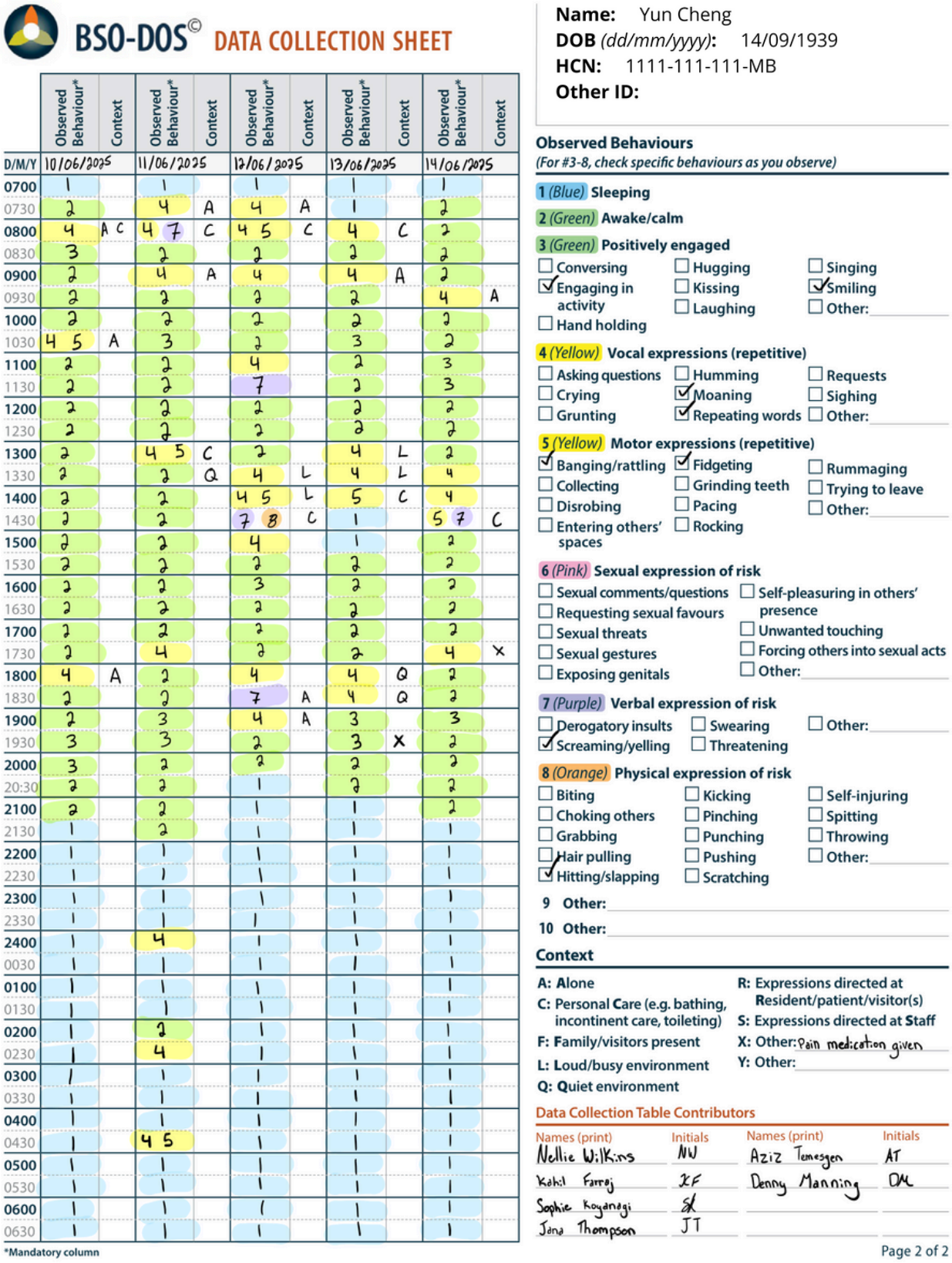
1. a) Check the reason(s) for completing BSO-DOS©:

- ☒ Baseline/Admission
- ☐ Transition/Move
- ☐ Change in behaviour
- ☐ Evaluation of a new strategy/approach
- ☐ Adjustment of medications
- ☐ Support for a referral/transfer
- ☒ New behaviour: calling out
- ☐ Other:

b) BSO-DOS© start date: 10/06/2025 **BSO-DOS© stop date:** 14/06/2025

Section 1 completed by (*print name*): Nellie Wilkins **Signature:** Nellie Wilkins

Below is the completed BSO-DOS© *Data Collection Sheet.*



BSO-DOS© DATA COLLECTION SHEET

Name: Yun Cheng
DOB *(dd/mm/yyyy)*: 14/09/1939
HCN: 1111-111-111-MB
Other ID:

	Observed Behaviour*	Context	Observed Behaviour*	Context	Observed Behaviour*	Context	Observed Behaviour*	Context	Observed Behaviour*	Context
D/M/Y	10/06/2025		11/06/2025		12/06/2025		13/06/2025		14/06/2025	
0700	1		1		1		1		1	
0730	2		4	A	4	A	1		2	
0800	4	A C	4 7	C	4 5	C	4	C	2	
0830	3		2		2		2		2	
0900	2		4	A	4		4	A	2	
0930	2		2		2		2		4	A
1000	2		2		2		2		2	
1030	4 5	A	3		2		3		2	
1100	2		2		4		2		3	
1130	2		2		7		2		3	
1200	2		2		2		2		2	
1230	2		2		2		2		2	
1300	2		4 5	C	2		4	L	2	
1330	2		2	Q	4	L	4	L	4	
1400	2		2		4 5	L	5	C	4	
1430	2		2		7 8	C	1		5 7	C
1500	2		2		4		1		2	
1530	2		2		2		2		2	
1600	2		2		3		2		2	
1630	2		2		2		2		2	
1700	2		2		2		2		2	
1730	2		4		2		2		4	X
1800	4	A	2		4		4	Q	2	
1830	2		2		7	A	4	Q	2	
1900	2		3		4	A	3		3	
1930	3		3		2		3	X	2	
2000	3		2		2		2		2	
20:30	2		2		1		2		2	
2100	2		2		1		1		2	
2130	1		2		1		1		1	
2200	1		1		1		1		1	
2230	1		1		1		1		1	
2300	1		1		1		1		1	
2330	1		1		1		1		1	
2400	1		4		1		1		1	
0030	1		1		1		1		1	
0100	1		1		1		1		1	
0130	1		1		1		1		1	
0200	1		2		1		1		1	
0230	1		4		1		1		1	
0300	1		1		1		1		1	
0330	1		1		1		1		1	
0400	1		1		1		1		1	
0430	1		4 5		1		1		1	
0500	1		1		1		1		1	
0530	1		1		1		1		1	
0600	1		1		1		1		1	
0630	1		1		1		1		1	

*Mandatory column

Observed Behaviours
(For #3-8, check specific behaviours as you observe)

1 (Blue) Sleeping

2 (Green) Awake/calm

3 (Green) Positively engaged
- ☐ Conversing
- ☑ Engaging in activity
- ☐ Hand holding
- ☐ Hugging
- ☐ Kissing
- ☐ Laughing
- ☐ Singing
- ☑ Smiling
- ☐ Other:

4 (Yellow) Vocal expressions (repetitive)
- ☐ Asking questions
- ☐ Crying
- ☐ Grunting
- ☑ Humming
- ☑ Moaning
- ☑ Repeating words
- ☐ Requests
- ☐ Sighing
- ☐ Other:

5 (Yellow) Motor expressions (repetitive)
- ☑ Banging/rattling
- ☐ Collecting
- ☐ Disrobing
- ☐ Entering others' spaces
- ☑ Fidgeting
- ☐ Grinding teeth
- ☐ Pacing
- ☐ Rocking
- ☐ Rummaging
- ☐ Trying to leave
- ☐ Other:

6 (Pink) Sexual expression of risk
- ☐ Sexual comments/questions
- ☐ Requesting sexual favours
- ☐ Sexual threats
- ☐ Sexual gestures
- ☐ Exposing genitals
- ☐ Self-pleasuring in others' presence
- ☐ Unwanted touching
- ☐ Forcing others into sexual acts
- ☐ Other:

7 (Purple) Verbal expression of risk
- ☑ Derogatory insults
- ☑ Screaming/yelling
- ☐ Swearing
- ☐ Threatening
- ☐ Other:

8 (Orange) Physical expression of risk
- ☐ Biting
- ☐ Choking others
- ☐ Grabbing
- ☑ Hair pulling
- ☑ Hitting/slapping
- ☐ Kicking
- ☐ Pinching
- ☐ Punching
- ☐ Pushing
- ☐ Scratching
- ☐ Self-injuring
- ☐ Spitting
- ☐ Throwing
- ☐ Other:

9 Other:

10 Other:

Context

A: Alone
C: Personal Care (e.g. bathing, incontinent care, toileting)
F: Family/visitors present
L: Loud/busy environment
Q: Quiet environment
R: Expressions directed at Resident/patient/visitor(s)
S: Expressions directed at Staff
X: Other: Pain medication given
Y: Other:

Data Collection Table Contributors

Names (print)	Initials	Names (print)	Initials
Nellie Wilkins	NW	Aziz Temesgen	AT
Kahil Farroj	KF	Denny Manning	DM
Sophie Koyanagi	SK		
Jana Thompson	JT		

Page 2 of 2

Below is the completed BSO-DOS© *Analysis Table.*

Step 3 Analysis and Planning *(Use the completed Data Collection Sheet)*

3. a) Highlight the numbers on the Data Collection Sheet according to the colour-coded legend in order to identify patterns.

b) Use the table below to calculate how often per day the behaviour(s) of interest occurred *(not every row needs to be calculated).*

	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 number of 1-hour blocks per day *(Divide the total blocks by 10. Hint: move the decimal one space left.)*	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	20	15	22	24	20	=	101	÷10	10.1	☐	☐	☐
2 Awake/Calm	22	22	13	14	20	=	91	÷10	9.1	☐	☐	☐
3 Positively Engaged	3	3	1	3	3	=	13	÷10	1.3	☐	☐	☐
4 Vocal Expressions	3	8	9	6	4	=	30	÷10	3.0	☑	☑	☐
5 Motor Expressions	1	2	2	1	1	=	7	÷10	0.7	☑	☐	☐
6 Sexual Expression of Risk						=		÷10		☐	☐	☐
7 Verbal Expression of Risk	0	1	3	0	1	=	5	÷10	0.5	☑	☐	☐
8 Physical Expression or Risk	0	0	1	0	0	=	1	÷10	0.1	☐	☐	☐
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

Table completed by (*print name*): Nellie Wilkins Signature: Nellie Wilkins

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

- Mrs. Cheng's repetitive vocal expressions typically occur when she is alone. Especially in the morning when she gets out of bed and after meal times when residents are leaving the dining room.
- Mrs. Cheng expresses distress through repetitive vocal and motor expressions. When she has poor sleep the night before, these are more likely to escalate into verbal and physical expressions of risk.
- The more Mrs. Cheng is positively engaged, the less she expresses responsive behaviours.
- On average, Mrs. Cheng was observed being positively engaged during 1.3 one-hour blocks per day.

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

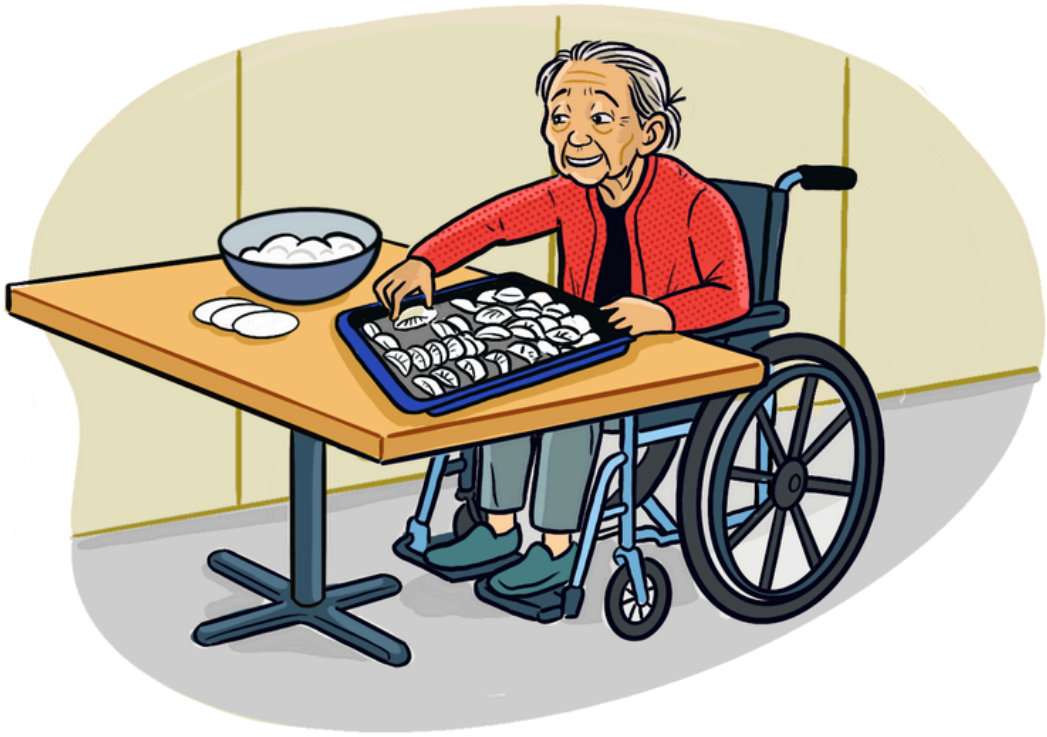
- It is stressful for Mrs. Cheng to be alone. Mrs. Cheng is used to having others around.
- Mrs. Cheng sleeps better when she has pain medication at bedtime. This was not given the night she slept poorly.
- Mrs. Cheng may need more time engaged in activities that are meaningful.

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

- Pain medication to be administered as a scheduled dose in the evening, rather than prn, to alleviate pain and promote a restful sleep. Pain to be assessed each shift.

- Team members to turn on radio in room at 0730, as this is when Mrs. Cheng often starts to call out upon waking.
- Promote meaningful activities that align with Mrs. Cheng's personhood information. Specifically, to promote a sense of home and purpose, the team to trial a new activity whereby they provide

Mrs. Cheng with white, non-toxic playdough to simulate dumpling dough. After each meal, after the tables are cleared, a team member to provide Mrs. Cheng with the playdough and a tray from home that she previously used for dumpling making. Family members plan to visit her during these times to make the dumplings together.



The team decides to repeat the BSO-DOS© for 5 days to measure the outcomes of these new approaches.

The next page is the progress note document within the clinical record:

New Progress Note

Resident: Cheng, Yun

Type: Responsive Behaviours/Personal Expressions

Date: 15/06/2025 13:00

Note:

BSO-DOS© completed 10/06/2025 - 14/06/2025. Paper copy scanned to chart.
Summary of Analysis Table:

- Concerns identified in relation to frequency and duration of Vocal Expressions (3.0 blocks per day) , frequency for Motor Expressions (0.7 blocks) and frequency for Verbal Expressions of Risk (0.5 blocks).

The BSO-DOS© data reveal the following:

- Repetitive vocal expressions typically occur when resident is alone – mostly the morning when she gets out of bed and after meal times.
- When resident has poor sleep the night before, these vocal expressions are more likely to escalate into verbal and physical expressions of risk.
- When resident is positively engaged, she expresses less responsive behaviours.
- On average, resident was positively engaged during 1.3 one-hour blocks per day.

Identified possible causes and contributing factors:

- It is stressful for resident to be alone. She is used to having a lot of family around.
- Resident sleeps better when she has pain medication at bedtime. This was not given the night she slept poorly.
- Resident may need more time engaged in activities that are meaningful.

Planned next steps:

- Writer to request MRP to change pain medication to a scheduled dose in the evening, rather than prn. Pain to be assessed each shift.
- Team members to turn on the radio in resident's room at 0730, as this is when resident often starts to call out.
- Team and family to promote meaningful activities. Team to trial a new activity whereby they provide resident with white, non-toxic playdough to simulate dumpling dough. After each meal, a team member to provide Mrs. Cheng with the playdough and a tray from home. Family members plan to visit her during these times to make the dumplings together.
- Care plan updated as per above.
- Writer will initiate another BSO-DOS© (17/06/2025 - 21/06/2025) to measure the outcomes of these new approaches.

Created By: Nellie Wilkins, RN

Case Study #2 - Mr. Singh

Mr. Singh (a pseudonym) is a 82 year old man living with dementia who recently moved into long-term care due to increasing care needs. He previously lived in a multigenerational home with his wife, their son and his son's family. He and his wife emigrated from India in 2000 to be with their children and grandchildren in Canada. Mr. Singh speaks and understands Punjabi, and understands English when spoken with simple phrases and uses some English words.

Mr. Singh is incontinent of bladder and at times bowels, such as when he can't find the toilet or when he is not guided to the toilet after meals. Team members are struggling to support Mr. Singh with his personal care, reporting that he is "resistant to care". In order to better understand which specific behaviours are occurring, their frequency, context, and if there are any patterns, the team initiates the BSO-DOS©.

Below is the completed BSO-DOS© *Data Collection Sheet*.

BSO-DOS© DATA COLLECTION SHEET

	Observed Behaviour*	Context	Observed Behaviour*	Context	Observed Behaviour*	Context	Observed Behaviour*	Context	Observed Behaviour*	Context
D/M/Y	10/06/2025		11/06/2025		12/06/2025		13/06/2025		14/06/2025	
0700	1		1		1		1		1	
0730	1		2		1		1		2	
0800	4 7 8	C	4 7	C	2		4 7 8	C	4 7	C
0830	2		2		4 7	C	3	F	2	
0900	3	F	3	F	3	F	2		3	F
0930	2		2		2		2		2	
1000	2		2		2		2		2	
1030	2		2		2		3		2	
1100	4 7	C	4 7	C	4 7	C	4 7	C	4 7	C
1130	2		5	A	2		5	A	2	
1200	2		2		2		5	A	5	A
1230	3		2		5	A	2		2	
1300	2		5	A	1		3	F	5	A
1330	5	A	3		5	A	3	F	5	A
1400	5	A	3		5	A	2		2	
1430	2		5	A	5	A	5	A	3	
1500	5	A	5	A	2		5	A	3	
1530	4 7	C	4 7	C	4 7	C	4 7	C	4 7	C
1600	3		5	A	5	A	5	A	2	
1630	3		5	A	5	A	3		5	A
1700	5	A	2		5	A	2		2	
1730	2		5	A	2		5	A	2	
1800	2		5	A	3	F	5	A	5	A
1830	5	A	5	A	3	F	5	A	5	A
1900	5	A	5	A	3	F	3		5	A
1930	2		5	A	3	F	5	A	5	A
2000	4 7	C	4 7	C	5	A	4 7	C	4 7	C
20:30	1		2		4 7	C	1		1	
2100	1		1		2		1		1	
2130	1		1		1		1		1	
2200	1		1		1		1		1	
2230	1		1		1		1		1	
2300	1		1		1		1		1	
2330	1		1		1		1		1	
2400	1		1		1		1		1	
0030	1		1		1		1		1	
0100	1		1		1		1		1	
0130	1		1		1		1		1	
0200	1		1		1		1		1	
0230	1		1		1		1		1	
0300	1		1		1		1		1	
0330	1		1		1		1		1	
0400	1		1		1		1		1	
0430	1		1		1		1		1	
0500	1		1		1		1		1	
0530	1		1		1		1		1	
0600	1		1		1		1		1	
0630	1		1		1		1		1	

*Mandatory column

Name: Sukhdev Singh
DOB *(dd/mm/yyyy)*: 27/02/1943
HCN: 1111-111-111-MB
Other ID:

Observed Behaviours

(For #3-8, check specific behaviours as you observe)

1 (Blue) Sleeping

2 (Green) Awake/calm

3 (Green) Positively engaged

- ☐ Conversing
- ☐ Hugging
- ☐ Singing
- ☑ Engaging in activity
- ☐ Kissing
- ☑ Smiling
- ☐ Laughing
- ☐ Other:
- ☐ Hand holding

4 (Yellow) Vocal expressions (repetitive)

- ☐ Asking questions
- ☐ Humming
- ☐ Requests
- ☐ Crying
- ☑ Moaning
- ☐ Sighing
- ☐ Grunting
- ☐ Repeating words
- ☐ Other:

5 (Yellow) Motor expressions (repetitive)

- ☐ Banging/rattling
- ☑ Fidgeting
- ☑ Rummaging
- ☐ Collecting
- ☐ Grinding teeth
- ☐ Trying to leave
- ☐ Disrobing
- ☐ Pacing
- ☐ Other:
- ☐ Entering others' spaces
- ☐ Rocking

6 (Pink) Sexual expression of risk

- ☐ Sexual comments/questions
- ☐ Self-pleasuring in others' presence
- ☐ Requesting sexual favours
- ☐ Sexual threats
- ☐ Unwanted touching
- ☐ Forcing others into sexual acts
- ☐ Sexual gestures
- ☐ Exposing genitals
- ☐ Other:

7 (Purple) Verbal expression of risk

- ☐ Derogatory insults
- ☐ Swearing
- ☐ Other:
- ☑ Screaming/yelling
- ☐ Threatening

8 (Orange) Physical expression of risk

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

9 Other:

10 Other:

Context

A: Alone
C: Personal Care (e.g. bathing, incontinent care, toileting)
F: Family/visitors present
L: Loud/busy environment
Q: Quiet environment
R: Expressions directed at Resident/patient/visitor(s)
S: Expressions directed at Staff
X: Other:
Y: Other:

Data Collection Table Contributors

Names (print)	Initials	Names (print)	Initials
Amara Mago	AM	Luke Patel	LP
Mateo Reyes	MR		
Sam Herrera	SH		
Priya Mehta	PM		

Page 2 of 2

Below is the completed BSO-DOS© *Analysis Table.*

Step 3 Analysis and Planning *(Use the completed Data Collection Sheet)*

3. a) Highlight the numbers on the Data Collection Sheet according to the colour-coded legend in order to identify patterns.

b) Use the table below to calculate how often per day the behaviour(s) of interest occurred *(not every row needs to be calculated).*

	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 number of 1-hour blocks per day *(Divide the total blocks by 10. Hint: move the decimal one space left.)*	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	21	19	19	21	20	=	100	÷10	10	☐	☐	☐
2 Awake/Calm	11	9	9	6	11	=	46	÷10	4.6	☑	☐	☐
3 Positively Engaged	4	3	5	6	3	=	21	÷10	2.1	☐	☐	☐
4 Vocal Expressions	4	4	4	4	4	=	20	÷10	2.0	☑	☐	☐
5 Motor Expressions	6	11	8	9	8	=	42	÷10	4.2	☑	☑	☐
6 Sexual Expression of Risk	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
7 Verbal Expression of Risk	4	4	4	4	4	=	20	÷10	2.0	☑	☐	☐
8 Physical Expression or Risk	1	0	0	1	0	=	2	÷10	0.2	☐	☐	☑
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

Table completed by *(print name)*: Amara Mayo Signature: Amara Mayo

The completed BSO-DOS© revealed that during personal care Mr. Singh has repetitive vocal expressions (specifically moaning), verbal expressions of risk (specifically yelling), and at times physical expressions of risk (specifically pushing, grabbing and scratching). During the 5 day data collection period, moaning and yelling appear to occur each time personal care occurs; however, the physical expressions of risk more frequently occur when care is provided in the morning. It is also recognized that in the late afternoon and evening, Mr. Singh collects and fidgets with items for on average 4.2 hour-long blocks daily when he is alone. The completed BSO-DOS© also reveals that Mr. Singh is only positively engaged for an average of 2.1 1-hour blocks per day.

Along with completing the BSO-DOS©, the team collected personhood information about Mr. Singh the My Personal Summary©. Key highlights included:

- Mr. Singh's family is very important to him and he loves family gatherings. He is proud to be the patriarch of the home.
- Mr. Singh is a Sikh by religion, and wears a turban that he holds with deep respect.
- Mr. Singh worked as a mechanical engineer and enjoys working with his hands. He has always loved to repair items at home (e.g., radios, clocks and toasters).
- Mr. Singh loves to grow vegetables in the backyard and loves to read (especially poetry and fiction).
- Mr. Singh's favourite music is Hindi music from the 1960's and 1970's.

The team also gathered details from his family about his bathing routine at home. They discovered that he previously used a small bathroom and always locked the door. To shower he

used a bucket, soap, and jug to rinse off. His family stressed how important it is to Mr. Singh to wear his turban when awake, as covering his head is very important to Sikh men. Team members noted that since he moved in, Mr. Singh's son has been helping him don his turban. But, his son usually doesn't arrive until after morning care is done.

Based on all this information, the following contributing factors were identified to Mr. Singh's responsive behaviours during personal care:

- Mr. Singh values privacy, and his self-protective behaviours during personal care indicate that he doesn't understand what is happening and that he is fearful.
- The current environment for personal care and bathing is very different from his usual practices at home.
- Mr. Singh finds it distressing not to have his turban on when awake. When personal care is attempted when he has not yet donned his head covering, this adds to his distress.

Together, the team and family decide to trial the following in approaches to reduce Mr. Singh's distress during personal care:

- Upon waking, a team member assists Mr. Singh in donning his turban. His son will demonstrate to team members how to help Mr. Singh don his turban and also provide written step-by-step directions. Donning of the turban and hair washing will occur at a separate time than personal care.
- Personal care to be provided by two team members, with one person designated to primarily speak to Mr. Singh. Team members to wear long sleeve shirts and/or scratch protective guards to protect themselves from any potential scratching. They also will aim to keep Mr. Singh's nails cut short, to reduce the risk of injury from scratching.
- When approaching Mr. Singh, the designated team member introduces both team members assisting with care, and says "Nahaa lao" (meaning 'please take a shower' in Punjabi). Smiling, they show him the bucket and jug that his family have brought from home that are just to be used as a visual cue to orient Mr. Singh to bathing.
- Team members to promote privacy by ensuring curtains are drawn and the door is closed, as well as by wrapping a large towel with Velcro around his waist (over his clothes/pajamas). Throughout the care, team members are to reassure Mr. Singh that they are there to help and that it is "very private".
- During personal care, team members to softly play his music selection (i.e. Hindi music) on his tablet. They can hum along to the music.
- Team members should be prepared to pause the care for short intervals if Mr. Singh indicates distress (e.g., moaning, yelling, grabbing or scratching), ensuring that Mr. Singh is covered during these pauses.

The following contributing factors were also identified in relation to his collecting and fidgeting behaviours:

- Mr. Singh is attempting to engage in previous work as a mechanical engineer and past enjoyment in fixing items.
- Mr. Singh has limited positive engagement and is bored.

To meet these needs the team and family decide to trial the following new approaches:

- Recreational Therapist to work with the family to create several rummaging boxes. These will include familiar items from home (e.g. radio, alarm clock, book of poetry, and gardening gloves) as well as items from the recreation program (e.g. textured balls, PVC piping, and artificial soft vegetables). Team members to provide Mr. Singh with one of his rummaging boxes mid afternoon and after supper and say “Mr. Singh, I need your help. I have a few things that need fixing. I know you are good at fixing things”.

- Team members are also encouraged to turn on his Hindi music to play softly in his room throughout the day.
- The family will provide a page with the most commonly used Punjabi words that the team will place in his room. Team members to use these words when interacting with Mr. Singh.

The team decides to repeat the BSO-DOS© for 5 days to measure outcomes of the new approaches.

Case Study #3 - Mrs. Novak

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 loss for her and her two young children at the time. She remarried and had two additional children. Her children describe a loving relationship between their mother and her second husband for 30 years before he passed away several 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 activities of daily living. Five years ago she was diagnosed with dementia. For the last few years, her family and home care supports worked together to keep Mrs. Novak in her home. Due to increased 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 the move, team members notice that Mrs. Novak becomes quite tearful and cries out for extended periods of time in the day and the night. When staff and family try to console her, she continues to cry and stroke their hands. Mrs. Novak often cries during mealtimes. When this occurs, she is often brought back to her room to avoid upsetting other residents and to give her privacy. This has led to weight loss. The team decide to complete a BSO-DOS© to better understand the timing, context, and any patterns around these periods of crying.

Below is the completed BSO-DOS© *Data Collection Sheet.*

BSO-DOS© DATA COLLECTION SHEET

	Observed Behaviour*	Context	Observed Behaviour*	Context	Observed Behaviour*	Context	Observed Behaviour*	Context	Observed Behaviour*	Context
D/M/Y	10/06/2025		11/06/2025		12/06/2025		13/06/2025		14/06/2025	
0700	1		1		1		4	A	1	
0730	2		2		2		4	A	1	
0800	4	X	4	X	4	X	2		4	X
0830	4	X	4	X	4	X	4	X	4	X
0900	4	A	2		4	A	4	X	2	
0930	3		4	A	2		2		4	F
1000	2		2		2		4	A	4	F
1030	2		2		4	F	2		3	
1100	2		2		3		2		2	
1130	2		4	A	2		2		4	A
1200	4	X	4	X	4	X	4	X	4	X
1230	4	X	2		4	X	4	X	2	
1300	2		2		2		1		2	
1330	2		4	F	4	A	1		4	F
1400	1		2		2		2		4	F
1430	4	A	2		2		4	A	4	F
1500	2		3		2		2		2	
1530	2		4	A	2		4		2	
1600	4	A	2		2		2		2	
1630	2		4	A	4	A	3		4	A
1700	4	X	4	X	4	X	4	X	4	X
1730	4	X	4	X	4	X	4	X	4	X
1800	4	A	2		2		4	F	2	
1830	2		2		2		4	F	2	
1900	2		4	A	2		2		2	
1930	3		2		2		2		4	A
2000	2		4	A	4	A	2		2	
20:30	2		2		2		2		4	A
2100	2		2		2		4	A	4	F
2130	2		2		4	A	2		2	
2200	4	A	1		1		2		1	
2230	1		1		1		1		1	
2300	1		1		1		4	A	1	
2330	1		4	A	1		4	A	1	
2400	1		1		4	A	1		4	A
0030	1		4	A	1		1		1	
0100	1		1		1		1		1	
0130	4	A	1		1		4	A	4	A
0200	4	A	1		1		1		1	
0230	1		1		1		1		1	
0300	1		1		1		1		1	
0330	1		1		4	A	1		4	A
0400	1		1		4	A	1		1	
0430	4	A	1		1		4	A	1	
0500	1		1		1		4	A	1	
0530	1		1		1		4	A	1	
0600	1		1		1		1		1	
0630	4	A	1		1		1		4	A

*Mandatory column

Name: Vera Novak
DOB *(dd/mm/yyyy)*: 15/01/1943
HCN: 1111-111-111-MB
Other ID:

Observed Behaviours
(For #3-8, check specific behaviours as you observe)

1 (Blue) Sleeping

2 (Green) Awake/calm

3 (Green) Positively engaged
- ☐ Conversing
- ☐ Hugging
- ☐ Singing
- ☑ Engaging in activity
- ☐ Kissing
- ☑ Smiling
- ☐ Laughing
- ☐ Other:
- ☐ Hand holding

4 (Yellow) Vocal expressions (repetitive)
- ☐ Asking questions
- ☐ Humming
- ☐ Requests
- ☑ Crying
- ☐ Moaning
- ☐ Sighing
- ☐ Grunting
- ☐ Repeating words
- ☐ Other:

5 (Yellow) Motor expressions (repetitive)
- ☐ Banging/rattling
- ☐ Fidgeting
- ☐ Rummaging
- ☐ Collecting
- ☐ Grinding teeth
- ☐ Trying to leave
- ☐ Disrobing
- ☐ Pacing
- ☐ Other:
- ☐ Entering others' spaces
- ☐ Rocking

6 (Pink) Sexual expression of risk
- ☐ Sexual comments/questions
- ☐ Self-pleasuring in others' presence
- ☐ Requesting sexual favours
- ☐ Sexual threats
- ☐ Unwanted touching
- ☐ Sexual gestures
- ☐ Forcing others into sexual acts
- ☐ Exposing genitals
- ☐ Other:

7 (Purple) Verbal expression of risk
- ☐ Derogatory insults
- ☐ Swearing
- ☐ Other:
- ☐ Screaming/yelling
- ☐ Threatening

8 (Orange) Physical expression of risk
- ☐ Biting
- ☐ Kicking
- ☐ Self-injuring
- ☐ Choking others
- ☐ Pinching
- ☐ Spitting
- ☐ Grabbing
- ☐ Punching
- ☐ Throwing
- ☐ Hair pulling
- ☐ Pushing
- ☐ Other:
- ☐ Hitting/slapping
- ☐ Scratching

9 Other:

10 Other:

Context
- **A:** Alone
- **C:** Personal Care (e.g. bathing, incontinent care, toileting)
- **F:** Family/visitors present
- **L:** Loud/busy environment
- **Q:** Quiet environment
- **R:** Expressions directed at Resident/patient/visitor(s)
- **S:** Expressions directed at Staff
- **X:** Other: When eating / drinking
- **Y:** Other:

Data Collection Table Contributors

Names (print)	Initials	Names (print)	Initials
Elise Dubois	ED		
Ling Chen	LC		
Lauren Kapoor	LK		
Quinn Santos	QS		

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Below is the completed BSO-DOS© *Analysis Table.*

Step 3 **Analysis and Planning** *(Use the completed Data Collection Sheet)*

3. a) Highlight the numbers on the Data Collection Sheet according to the colour-coded legend in order to identify patterns.

b) Use the table below to calculate how often per day the behaviour(s) of interest occurred *(not every row needs to be calculated).*

	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 number of 1-hour blocks per day *(Divide the total blocks by 10. Hint: move the decimal one space left.)*	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	15	17	16	13	16	=	77	÷10	7.7	☐	☐	☐
2 Awake/Calm	16	16	16	14	12	=	74	÷10	7.4	☐	☐	☐
3 Positively Engaged	2	1	1	1	1	=	6	÷10	6	☐	☐	☐
4 Vocal Expressions	15	14	15	20	19	=	83	÷10	8.3	☑	☑	☐
5 Motor Expressions	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
6 Sexual Expression of Risk	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
7 Verbal Expression of Risk	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
8 Physical Expression or Risk	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

Table completed by *(print name)*: Elise Dubois Signature: Elise Dubois

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

- On average, Mrs. Novak was observed crying during 8.3 1-hour blocks on average per day, a concern in relation to frequency.
- Mrs. Novak cried when she was '*Alone*', when '*family/visitors present*', and '*when eating/drinking*' during meal times.

Along with completing the BSO-DOS©, the team collected additional personhood information about Mrs. Novak, including:

- Mrs. Novak has a particular love for Eastern European folk songs.
- Mrs. Novak found music and dancing beneficial in helping her grieve her first husband's passing.

The team and family collaborate to trial using music to decrease Mrs. Novak's crying and distress, ultimately increasing her quality of life:

- Family to bring in music loaded onto a tablet. Team members are to turn the music on for Mrs. Novak when she is in her room, not sleeping.
- Recreation therapy to meet with Mrs. Novak to engage in music and dancing activities. This includes helping her to make a new music playlist she enjoys, dancing with her, and group music making.
- Team members to provide Mrs. Novak with her music and headphones when she is in the dining room.

Below is the completed BSO-DOS© *Analysis Table.*

Step 3 Analysis and Planning *(Use the completed Data Collection Sheet)*

3. a) Highlight the numbers on the Data Collection Sheet according to the colour-coded legend in order to identify patterns.

b) Use the table below to calculate how often per day the behaviour(s) of interest occurred *(not every row needs to be calculated).*

	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 number of 1-hour blocks per day *(Divide the total blocks by 10. Hint: move the decimal one space left.)*	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	15	17	16	13	16	=	77	÷10	7.7	☐	☐	☐
2 Awake/Calm	16	16	16	14	12	=	74	÷10	7.4	☐	☐	☐
3 Positively Engaged	2	1	1	1	1	=	6	÷10	6	☐	☐	☐
4 Vocal Expressions	15	14	15	20	19	=	83	÷10	8.3	☑	☑	☐
5 Motor Expressions	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
6 Sexual Expression of Risk	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
7 Verbal Expression of Risk	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
8 Physical Expression or Risk	0	0	0	0	0	=	0	÷10	0	☐	☐	☐
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

Table completed by *(print name)*: Elise Dubois Signature: Elise Dubois

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

- On average, Mrs. Novak was observed crying during 8.3 1-hour blocks on average per day, a concern in relation to frequency.
- Mrs. Novak cried when she was '*Alone*', when '*family/visitors present*', and '*when eating/drinking*' during meal times.

Along with completing the BSO-DOS©, the team collected additional personhood information about Mrs. Novak, including:

- Mrs. Novak has a particular love for Eastern European folk songs.
- Mrs. Novak found music and dancing beneficial in helping her grieve her first husband's passing.

The team and family collaborate to trial using music to decrease Mrs. Novak's crying and distress, ultimately increasing her quality of life:

- Family to bring in music loaded onto a tablet. Team members are to turn the music on for Mrs. Novak when she is in her room, not sleeping.
- Recreation therapy to meet with Mrs. Novak to engage in music and dancing activities. This includes helping her to make a new music playlist she enjoys, dancing with her, and group music making.
- Team members to provide Mrs. Novak with her music and headphones when she is in the dining room.

Once these interventions were in place, the team initiated a new BSO-DOS© to measure their impact in reducing Mrs. Novak's crying and distress. 'Music' was added within the context section on the data collection sheet as 'Y'.

Context

A: Alone	**R:** Expressions directed at **R**esident/patient/visitor(s)
C: Personal **C**are (e.g. bathing, incontinent care, toileting)	**S:** Expressions directed at **S**taff
F: Family/visitors present	**X:** Other: When eating/drinking
L: Loud/busy environment	**Y:** Other: Music Therapy
Q: Quiet environment	

After the introduction of music as a meaningful engagement strategy, 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).

With the addition of her headphones and music at mealtimes, Mrs. Novak's has begun calmly and contently enjoying mealtimes in the dining room. As a result, team members are able to offer her more assistance and her intake and weight have improved, along with a significant decrease in distress expressed. The team and the family continued to think of additional ways to engage Mrs. Novak through music.

Case Study #4 - Mr. Lamontagne

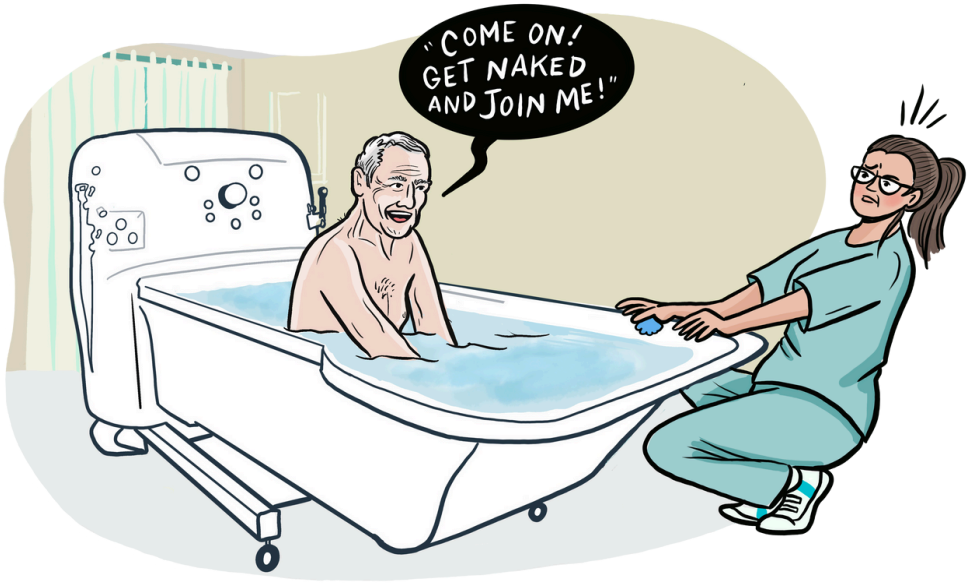
Mr. Henri Lamontagne (a pseudonym) is a 69-year-old man who was hospitalized following a collision on his all-terrain vehicle (ATV). He has a pre-existing diagnosis of frontal-temporal lobe dementia and is now recovering from fractures in his lower leg. Mr. Lamontagne, who has never married and has no children, has one sister who lives nearby with her husband and their children. He prefers to be called 'Henri'.

Before his hospitalization, Henri was an energetic man who worked as a security guard at a local concert venue up until his retirement a few years ago. He enjoys rock music, summer barbecues, and buying and selling recreational vehicles such as boats, ATVs, and snowmobiles. His sister has voiced concerns about plans for his return to the community following this hospitalization, citing his declining cognition, a decrease noted in his hygiene, and poor decision-making regarding the daily use of these vehicles. She describes her brother as impulsive and reckless - a contrast to the responsible person he once was.

As Henri recovers in the hospital, his strength, energy, and sense of humour have begun to return. He has started making comments to female team members, stating that it's "nice to have women cater to his needs" but that he wishes their uniforms "showed a little more skin." While some dismiss these remarks, others feel uncomfortable.

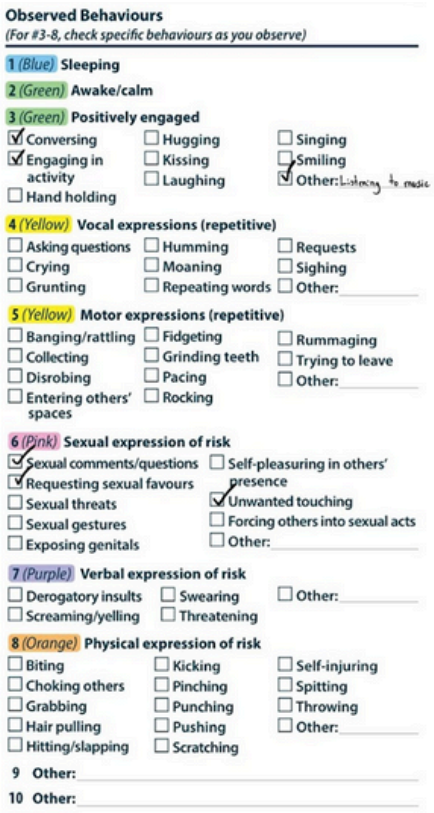
More recently, there has been some concerning behaviours occurring during bathing. When team members assist him in removing his clothing, he asks if he can help them remove theirs as well. He also insists that they join him in the tub. Many team members feel unsure of how to respond, and so they ignore his comments.

In response to these concerns, the team initiates a BSO-DOS© to systematically track Henri's expressions, identify potential contributing factors, and implement strategies to prevent and respond when necessary.



The BSO-DOS© reveals the following patterns and details:

- Sexual expressions of risk occurred daily, every morning and evening in the context of personal care and were directed at staff members. The specific expressions include: sexual comments, requests for sexual favours and unwanted touching.
- Sexual expressions were time limited (did not extend beyond a ½ hour block; average number of one-hour blocks per day = 1) and did not occur outside of the context of personal care. Despite the duration of the sexual expressions being low, concern is identified regarding frequency and risk.
- Henri is often positively engaged in activities throughout the data (an average of 4.2 one-hour blocks per day).



Observed Behaviours
(For #3-8, check specific behaviours as you observe)

1 (Blue) Sleeping

2 (Green) Awake/calm

3 (Green) Positively engaged
- ☑ Conversing
- ☐ Hugging
- ☐ Singing
- ☑ Engaging in activity
- ☐ Kissing
- ☐ Smiling
- ☐ Laughing
- ☑ Other: Listening to music
- ☐ Hand holding

4 (Yellow) Vocal expressions (repetitive)
- ☐ Asking questions
- ☐ Humming
- ☐ Requests
- ☐ Crying
- ☐ Moaning
- ☐ Sighing
- ☐ Grunting
- ☐ Repeating words
- ☐ Other:

5 (Yellow) Motor expressions (repetitive)
- ☐ Banging/rattling
- ☐ Fidgeting
- ☐ Rummaging
- ☐ Collecting
- ☐ Grinding teeth
- ☐ Trying to leave
- ☐ Disrobing
- ☐ Pacing
- ☐ Other:
- ☐ Entering others' spaces
- ☐ Rocking

6 (Pink) Sexual expression of risk
- ☑ Sexual comments/questions
- ☐ Self-pleasuring in others' presence
- ☑ Requesting sexual favours
- ☐ Sexual threats
- ☑ Unwanted touching
- ☐ Sexual gestures
- ☐ Forcing others into sexual acts
- ☐ Exposing genitals
- ☐ Other:

7 (Purple) Verbal expression of risk
- ☐ Derogatory insults
- ☐ Swearing
- ☐ Other:
- ☐ Screaming/yelling
- ☐ Threatening

8 (Orange) Physical expression of risk
- ☐ Biting
- ☐ Kicking
- ☐ Self-injuring
- ☐ Choking others
- ☐ Pinching
- ☐ Spitting
- ☐ Grabbing
- ☐ Punching
- ☐ Throwing
- ☐ Hair pulling
- ☐ Pushing
- ☐ Other:
- ☐ Hitting/slapping
- ☐ Scratching

9 Other:

10 Other:

Step 3 Analysis and Planning *(Use the completed Data Collection Sheet)*

3. a) Highlight the numbers on the Data Collection Sheet according to the colour-coded legend in order to identify patterns.

b) Use the table below to calculate how often per day the behaviour(s) of interest occurred *(not every row needs to be calculated).*

	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 number of 1-hour blocks per day *(Divide the total blocks by 10. Hint: move the decimal one space left.)*	Concerns		
	Day 1	Day 2	Day 3	Day 4	Day 5					Frequency	Duration	Risk
1 Sleeping	15	17	16	15	17	=	80	÷10	8.0	☐	☐	☐
2 Awake/Calm	22	20	23	22	21	=	108	÷10	10.8	☐	☐	☐
3 Positively Engaged	9	9	7	9	8	=	42	÷10	4.2	☐	☐	☐
4 Vocal Expressions						=		÷10		☐	☐	☐
5 Motor Expressions						=		÷10		☐	☐	☐
6 Sexual Expression of Risk	2	2	2	2	2	=	10	÷10	1.0	☑	☐	☑
7 Verbal Expression of Risk						=		÷10		☐	☐	☐
8 Physical Expression or Risk						=		÷10		☐	☐	☐
9						=		÷10		☐	☐	☐
10						=		÷10		☐	☐	☐

Table completed by (print name): Harper Wilson Signature: Harper Wilson

The following additional details are learned from reviewing of the progress notes, as well as from a team meeting where the completed BSO-DOS© is reviewed with the team:

- Henri's sexual expressions of risk are exclusively directed at female team members and occur only when he is in his private room or the tub room.

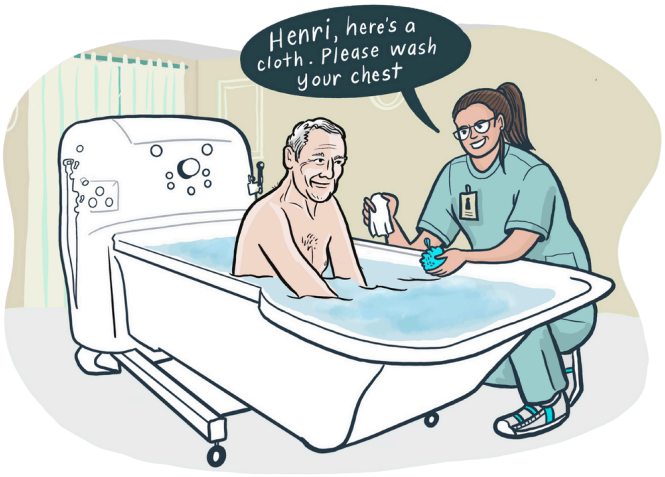
- Sexual comments occur when team members are helping him with dressing, but they escalate to include requests for sexual favours and grabbing the team members' breasts when he is being assisted in the bathtub.
- When his comments are ignored, Henri yells, "Come on, Shirley!" No team members recognize this name, and it is not listed on his My Personhood Summary©.
- The activities that he is positively engaged in include flipping through boat catalogues or listening to music on his iPhone.

During this discussion, the team explores potential underlying factors contributing to Henri's behaviour.

A nurse has a one-on-one discussion with Henri about his sexual health and history. Through this conversation, it is revealed that "Shirley" is a previous girlfriend. Shirley became ill and died before his accident, and he still misses her. The nurse asks additional sexual health questions to identify needs and strategies to promote his well-being. The nurse acknowledges that his sexual health needs are not being met, explaining that while hospital staff are there to support his recovery, they do not fulfill romantic or sexual roles. The nurse clearly communicates that his comments are making staff uncomfortable and asks him to stop, even if they are meant jokingly. She continues, by explaining that the team occupational therapist (OT) and therapeutic recreationist (TR) will explore strategies to help him meet his personal needs.

A follow-up huddle is held with the team to develop strategies to promote Henri's sexual health, as well as prevent, reduce and respond to his sexual expressions of risk. The following strategies are identified:

- Nurse to have a follow-up conversation with Henri about his sexual health needs, including exploring options to support Henri to privately self-pleasure.
- The OT and TR acquire and provide sexual materials that Henri indicates he uses at home for self-pleasuring purposes
- Trial having two team members present during any bathing (in the bathtub).
- When providing personal care (e.g., dressing and bathing), healthcare providers to:
    - Introduce themselves, their role, and their purpose for being in his room to establish professional boundaries.
    - Play rock music of his choice and engage Henri in a conversation about music or his other interests.
    - Encourage Henri to participate in his own care.



- Use clear, direct language when redirecting sexual comments (e.g., “Henri, I’m here to help you get ready for the day. Please do not make comments about my clothes”).
- Use scripts that the OT and TR have created if/when Henri requests sexual favours. The scripts are professional responses meant to redirect his requests for favours in a non-punitive fashion.

The team agrees to implement these strategies and then conduct a second BSO-DOS© in two-weeks’ time to evaluate their impact.

To learn more about responding to sexual expressions, complete BSO’s free online learning program, Supporting the Sexual Health of People with Dementia. Visit: branxchange.ca/BSOSexualHealth

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THANK YOU

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thank you