Depression is the psychiatric syndrome that has received the most attention in individuals with cancer. Many research groups have assessed depression in cancer patients since the 1960s; nevertheless, reported prevalence (major depression, 0%–38%; depression spectrum syndromes, 0%–57%) varies significantly because of differences in conceptualisations of depression, criteria used to define depression, methodological approaches to measurement of depression and populations studied (see Table 1).¹ So although depression is believed to affect men and women with cancer equally, gender-related differences in prevalence and severity have not been adequately evaluated.²

While many breast cancer patients experience ‘normal’ distress, there is a subset who experience clinically significant depression.³ A study that examined the prevalence and risk factors of developing a mood disorder following a diagnosis of breast cancer revealed that nearly 50% of women with early breast cancer developed depression, anxiety, or both in the year after diagnosis.⁴

Four predisposing factors are suggested for the occurrence of depression in breast cancer patients:⁵
1. How the patient deals with the cancer diagnosis.
2. The effect on the person’s body image and relationships, especially if a mastectomy is implicated.
3. How advanced the cancer is.
4. Adverse effects of medication used to treat the cancer.

Although anxiety and depression are the two most common psychiatric comorbidities associated with breast cancer and may lead to maladaptive illness behaviours, worsening the disease course and treatment outcomes, these psychiatric disorders may be ignored and so left untreated.⁶

Breast cancer and intellectual disability
In the UK, breast cancer is the most common cancer in women; more than 50,000 women are diagnosed with breast cancer each year and one in eight women will develop breast cancer at some point in their lifetime.⁷ The incidence of cancer among people with intellectual disabilities is rapidly increasing due to their increased life expectancy,⁸ and around one in 10 of this population will die of cancer.⁹ Nulliparity is also an associated risk factor for breast cancer. Since women with intellectual disability are increasing in longevity and are frequently nulliparous, they are at increased risk of developing breast cancer.¹⁰

Depression and intellectual disability
Symptoms of depression in intellectual disability patients can differ from those presented by the general population. The anti-oestrogen medication tamoxifen is widely used for the treatment of breast cancer and clinically relevant depression may be a common side-effect. Here, the authors discuss a case that highlights the importance for mental health professionals managing individuals with an intellectual disability and cancer to consider all possible causes of a change in mood or behaviour, so that the diagnosis and treatment of depression in this vulnerable group is not neglected.
that prevalence rates for depression in people with intellectual disabilities (3–5%) are at least similar to those for the general population (2–7%) and is therefore nearly twice as prevalent.11

Case study
This case report is about a 47-year-old lady, who has mild intellectual disability and lives in supported living accommodation. The patient had a long-standing history of behavioural problems and episodes of anxiety, which were usually triggered by a change in her environment and social circumstances. Her challenging behaviour escalated when she was anxious and usually manifested as self-injury (skin picking, arm biting and face slapping), verbal aggression, damage to property and making allegations against others, especially her support workers. She also displayed periods of heightened anxiety when she required more support to maintain self-care. She found maintaining relationships difficult and was highly sensitive to any perceived criticism.

The patient, who had an older sister who was diagnosed and treated for breast cancer, was moved to a supported living flat following several residential home settings. She was receiving support from the community psychiatry team for intellectual disabilities and reviewed regularly by a consultant psychiatrist.

The patient was diagnosed with bilateral breast cancer following routine tests conducted by a GP. There were no records of her having undergone breast screening previously despite the positive family history of breast cancer. At the time of diagnosis, she was noted to have bone and liver metastases and was referred to an oncologist. She underwent surgical treatment and lymph node resection following which she was prescribed a course of primary chemotherapy and commenced on tamoxifen and monthly goserelin injections.

Two months after initiation of tamoxifen and goserelin, a dramatic change was noted in the patient’s mood and behaviour, which included ignoring her personal care, refusing to eat and drink and throwing her belongings out of her flat. She became hostile and guarded towards her support workers eventually making it difficult for them to gain access to her flat to assist her. She was observed to avoid her family members. A clinical psychologist unsuccessfully made several attempts to engage with the patient to ascertain whether any psychosocial stressors were responsible for this change in behaviour. Support workers and the patient’s relatives were unable to identify any possible triggers.

During a three-week period there was a significant deterioration in her mood and behaviour, with evidence of risk to the patient’s health and safety leading to a Mental Health Act assessment with her detention and compulsory admission into hospital for a period of assessment. Upon admission to hospital she remained guarded, suspicious, hostile and labile in mood. Her self-neglect and poor dietary intake persisted. She also showed reluctance to take her prescribed anti-oestrogen medication.

To ensure that her behavioural presentation was not a consequence of further metastatic complications of breast cancer, the patient was reviewed by general physicians at a local accident and emergency department where a range of investigations were conducted, including a CT brain scan and blood tests, revealing no abnormalities.

The patient’s sister, who had also received tamoxifen treatment and experienced depression following its use, requested that the drug be discontinued as she suspected the change in her sister’s presentation was directly related to tamoxifen. The patient’s oncologist agreed to this request. Due to an ongoing deterioration in the patient’s mood, her consultant psychiatrist decided to commence antidepressant treatment. Two weeks later a gradual change was observed in her mood. However, she remained reluctant to leave her room and attend to her personal hygiene. After a further two weeks, she was observed to be communicative and had made an initial visit to her home. Her dietary intake and self-care also improved.

Following a further review with her oncologist, the patient agreed to receive the goserelin injection, which she had previously refused. Her oncologist reassured her that the cancer was in remission and that he would like to see her again four months later for a restaging scan to monitor any malignant spread of the cancer. The oncologist suggested that tamoxifen should ideally be taken alongside the goserelin injection. However, due to the possible adverse effects of this treatment on the patient’s mental health, tamoxifen was not reinitiated. Following the cessation of tamoxifen, the patient continued to make significantly good progress in her mood and behaviour and did not experience any adverse effects from the antidepressant. She returned to her supported living accommodation and began to engage with her support workers and attend community activities.

Discussion
This case raises a number of specific and wider issues, which may be further explored, around cancer screening, diagnosis, and training and support for patients.
Breast cancer medications and their adverse effects
In the UK, tamoxifen and goserelin are frequently used medications for treatment of breast cancer and are thought to cause depression through their action on the hormone oestrogen, produced by the ovaries. Oestrogen’s effect on mood occurs as it increases serotonin receptor density and urinary excretion of serotonin metabolite, leading to an increase in serotonin production.4

In a retrospective cohort study of oestrogen-positive breast cancer patients who were treated with tamoxifen, 27% suffered significant depressive symptoms following treatment.12 In some studies, some women needed to discontinue tamoxifen treatment secondary to depression.14 Goserelin is an injectable anti-oestrogen medication that stops the release of luteinising hormone from the pituitary gland, preventing the ovaries from producing oestrogen. Goserelin also has the well-documented side-effect of depression.15 Some case reports suggest women who are treated with oestrogen suppression therapy could be particularly at risk of suicidal ideation.14

In 2014, Macmillan Cancer Support provided patient information about the association between use of these medications and depression.16 However, patients with intellectual disabilities themselves may not be aware that the medication they are taking or the cancer itself is the cause of them experiencing a change in their mood and general well-being. Therefore it is essential for health professionals to be aware of these potential factors when a mood or behaviour change manifests in a person with intellectual disability.

Breast cancer screening
It is significant that the diagnosis of breast cancer was made in this patient when the cancer was in an advanced stage.

In the UK, women between the ages of 50 and 65 years are invited for screening every three years, in line with the national breast screening programme, as this is the age at which the risk of breast cancer is greatest. Furthermore, in England, the screening programme is now being extended to include women aged from 47 to 73 years, while women at higher than average risk of breast cancer can have screening from a younger age.15 The National Institute for Health and Care Excellence (NICE) now also recommends that women who have a moderate or high risk of breast cancer because of their family history should be screened annually in their 40s.17 A joint NHS and Cancer Research UK study reviewed breast screening for women in their 40s with a significant family history of breast cancer and found that yearly mammograms for women at an increased risk of breast cancer led to cancers being diagnosed at an earlier stage, helping to save lives.15

Sullivan et al. reported that approximately 50% of women with intellectual disability will live to 70 years of age and as a result many will fall within the age group at highest risk for breast cancer (50–69 years).18 Therefore women with intellectual disabilities should be screened. The Department of Health’s 2001 White Paper, ‘Valuing people’, stated that: ‘Few people with intellectual disabilities access health screening services with uptake rates for breast and cervical screening being especially poor.’19 Davies and Duff,10 have recommended that health promotion is essential in making both women and their carers aware of the necessity of breast screening.

The Disability Rights Commission, in 2005, analysed data from GP practices on uptake of screening in Wales. It identified an uptake rate of only 13% for cervical smear tests among people with intellectual disabilities compared with 84% in the practices as a whole. The uptake rate for breast screening was 26% in this group compared with 71% in the practices overall.21 Davies and Duff highlighted that only 52% of eligible women with an intellectual disability were screened following their invitation for breast screening.10 A study, which reviewed the uptake and knowledge of breast screening programmes in women with intellectual disabilities living in the community, concluded that general practitioners and practice nurses were currently playing very minor roles in breast screening these women. Primary health care professionals may therefore be missing opportunistic health promotion opportunities.

Deficiencies / inequalities in access to healthcare
Health inequalities experienced by those with intellectual disabilities are largely avoidable.21 Such deficiencies include:

1. Physical and informational barriers to access as well as failure to
make ‘reasonable adjustments’ in light of the literacy and communication difficulties experienced by many people with intellectual disabilities.

2. ‘Diagnostic overshadowing’: symptoms of physical ill health are mistakenly attributed to either a mental health/behavioural problem or as being inherent in the person’s intellectual disabilities.\(^{22}\)

Current research highlights poor knowledge levels and inaccessible information as factors contributing to poor access to healthcare services.\(^{23}\) Truesdale-Kennedy et al. identified a knowledge gap among staff regarding awareness of breast problems and screening, with a lack of policy and health promotion tools to assist with this. They concluded that women with intellectual disabilities failed to access screening as information was supplied in an inaccessible format.\(^{24}\) This was supported in a further study showing that breast cancer specialists felt there was no specific tool available to support them to make information accessible for women with intellectual disabilities accessing their services.\(^{25}\) Additional factors affecting access to screening include lack of emotional support to overcome fear, anxieties and embarrassment relating to screening. It is essential to support women with their emotional needs by offering consistency in staffing and support, which are vital in facilitating access to breast screening.\(^{25}\)

**Annual health checks**

Since 2006, following a formal investigation into the health inequalities experienced by people with intellectual disabilities, there have been repeated calls for the introduction of annual health checks for people with intellectual disabilities in England and Wales, as a ‘reasonable adjustment’ in primary health care services.\(^{21}\) Subsequent recommendations by the British Medical Association and the Department of Health\(^{21}\) have resulted in significant progress.

Primary care services tend to respond to problems raised by patients.\(^{26}\) Yet people with intellectual disabilities may be unaware of the implications of their symptoms, have difficulty communicating their symptoms or may be less likely to report them to medical staff.\(^{27}\) Therefore clinical symptoms may not be associated with a physical or mental illness by those caring for individuals with a intellectual disability.\(^{28}\) With frequent changes in carers, having a baseline annual health check ensures that an individual’s health can be monitored, and helps also with the problem of detecting and reporting any change in the symptoms of individuals with intellectual disabilities over time.\(^{29}\)

Legislation and policy, including The Health and Social Care Act (2008)\(^{30}\) and ‘Valuing people now’ strategy (2009),\(^{31}\) indicate that an integrated interprofessional approach to providing healthcare must be adopted if barriers, including inaccessible information, are to be overcome and the best outcomes achieved. Additionally, the Department of Health’s ‘Six lives’ progress report (2010)\(^{32}\) stated that people with learning disabilities are not receiving the service they deserve.

It is therefore imperative that intellectual disability healthcare professionals take a person-centred holistic approach towards identifying depression and its causes in this vulnerable group. It is also imperative that healthcare professionals support women from this group to be aware of breast cancer and encourage access to breast screening by the practice of interprofessional working. Following this approach will help to develop practices that will ensure that emotional needs, as well as accessible information and knowledge needs are met.

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**References**

General anesthesia before age 36 months does not increase risk of adverse neurocognitive outcomes

**Clinical question**
Does exposure to general anesthesia before age 36 months increase the risk of adverse neurocognitive outcomes?

**Reference**

**Study design:** Cohort (retrospective)  
**Funding source:** Industry + govt  
**Setting:** Inpatient (any location) with outpatient follow-up

**Synopsis**
The potential adverse neurocognitive effects of anesthesia exposure in young children are of concern for many parents. These investigators identified children, aged 8 to 15 years, who had a single exposure to general anesthesia before age 36 months for elective inguinal hernia surgery. Additional inclusion criteria were 36 weeks’ gestational age or older at birth and otherwise healthy or with very limited systemic diseases without functional limitations. Unexposed, biologically related siblings close in age (within 3 years) to the exposed child with no anesthesia exposure before age 36 months and also 36 weeks’ gestational age or older at birth served as controls. Sibling-matching as a comparison group (N = 105 sibling pairs) minimized confounding due to genetic background, familial environment, parental education, and socioeconomic status. Individuals masked to exposure status of siblings assessed study outcomes using standard neuropsychological testing tools. The mean duration of anesthesia was 84 minutes and ranged from 20 to 240 minutes. No significant differences occurred between exposed and unexposed siblings in mean IQ scores, memory/learning, motor processing speed, attention, executive function, language, or behavior. There was also no evidence of any difference in outcomes based on the duration of anesthesia nor on time of exposure (during the first, second, or third year of life).