



Women's Health and Down Syndrome: A case-based discussion of similarities and differences in care

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Symposium

 **ADVOCATE**HEALTH

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Objectives

- Understand similarities and differences in the health needs of women with Down syndrome compared to women without Down syndrome.
- Identify gaps in literature around women's health and Down syndrome.
- Begin moving toward a consensus on cancer screening guidelines uniquely written for women with Down syndrome.



Format

- For each topic
 - Share case
 - Poll on current practice
 - Share data
 - Group discussion of approach and data



Cervical Cancer in Down Syndrome

- I am 21 years old and I am here for my annual physical. I am very healthy! I get all of my required vaccines and some of the optional ones. My periods are regular. I have a boyfriend, but I have never had sex. My sister says I need a pap smear. I have never had one before. She talked to me about what a pap smear is, and I am nervous about having one. My sister said she would help me if I need to get a pap smear. As my doctor, what do you recommend?



Participation Questions

- Do you recommend women with Down syndrome undergo cervical cancer screening?
- Do you personally perform pap smears/pelvic exams in women with Down syndrome?
- Do you recommend HPV vaccination in women with Down syndrome?



Cervical Cancer in Down Syndrome

- Women with Down syndrome receive less gynecological care¹
 - Only 31% receive age-appropriate pap smears²



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Cervical Cancer in Down Syndrome

- Frequency of cervical cancer in women with Down syndrome
 - Cervical cancer is less common in women with intellectual disabilities^{3,4}
 - Cervical cancer is less common in women with Down syndrome
 - Fewer risk factors for cervical cancer⁵
 - Smoking
 - Multiple sexual partners



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Cervical Cancer in Down Syndrome

Study ^{6,7,8,9}	Cases of cervical cancer/ (women) individuals with DS	Cervical cancer as cause of death/individuals with DS
Chicoine et al 2021	38/(2904)*	
Hasle et al 2016	0/3530	
Fitzpatrick et al 2025	1/2855	
Yang et al 2002		0/17,897

*Chart review using AHRQ codes. Most of them were ASCUS, did not progress, and abnormalities resolved.



Cervical Cancer in Down Syndrome

Advanced cases have been found

Case Reports ^{10,11}	
Spahr et al 1982	39-year-old woman with DS vaginal cytology showed granulocytic sarcoma, which was found to be caused by acute granulocytic leukemia.
Al Inizi et al 2008	49-year-old woman with DS reportedly never sexually active presented with menopausal vaginal bleeding. Examination under general anesthesia showed tight hymenal ring and vagina obliterated by a large friable infiltrating mass, which was biopsied. Histology showed a poorly differentiated squamous cell carcinoma of the cervix. However, HPV DNA testing was not performed.



Cervical Cancer in Down Syndrome

- The role of HPV
 - HPV exposure may be unknown
 - Potential for abuse/not reporting sexual history in adults with intellectual disability¹²
 - 1 in 3 adults with intellectual disabilities experience sexual abuse in adulthood
 - Less likely to report abuse



Cervical Cancer in Down Syndrome

- The role of HPV
 - HPV vaccination rates are lower in women with Down syndrome^{2,13}



Cervical Cancer in Down Syndrome

- Pelvic exams and medical trauma¹⁴
 - Painful
 - Frightening
 - May remind women of past abuse
- Supporting women with Down syndrome during pelvic exams
 - Social stories before the exam¹⁵
 - Modifying exam techniques¹⁶



Cervical Cancer in Down Syndrome

Screening

- No formal cervical cancer screening guidelines for women with Down syndrome → wide variations in practice⁵

Author ^{14,17-19}	
ACOG	Screening with cytology, cytology + hrHPV testing, hrHPV testing alone every 3-5 years between ages of 21-65
Greenwood, Wilkson 2013	Tailor screening for each woman's risk of cervical cancer
Ross et al 2014	Start screening at age 21 and repeat based on risk factors
Wilson et al 2015	Women with DS should be included in adjusting current screening guidelines to address their individual preferences and risks



Cervical Cancer in Down Syndrome

- FDA-approved HPV self-testing kits
 - Doctor's offices
 - At home kits
 - Similar to tampon use
 - No studied in women with Down syndrome
 - Improved medical trauma
 - Safety
 - Caregiver assisted



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Cervical Cancer in Down Syndrome

- To summarize...
 - Women with Down syndrome have:
 - Lower rates of cervical cancer
 - Lower rates of cervical cancer risk factors
 - Lower rates of HPV vaccination
 - Higher risk of abuse (unknown HPV exposure risk)
 - Higher potential for medical trauma around cervical cancer screening methods



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Large Group Discussion Questions

- Should unique guidelines for cervical cancer screening in women with Down syndrome be developed? If so, what should they be?
- What might FDA-approved HPV self-collected kits mean for women with Down syndrome?
- What data are missing from the literature around cervical cancer in women with Down syndrome?



Breast Cancer in Down Syndrome

- I am 40 years old and I'm here for my check-up. I feel healthy. My mom says I need to ask about mammograms. My mom had breast cancer. She did some genetic testing but did not have any breast cancer genes. Mammograms sound a little scary! My mom says she will help me if I need one. As my doctor, what do you recommend?



Participation Questions

- Do you recommend women with Down syndrome undergo mammography?
- Do you personally perform screening breast exams in your clinic? If yes, at what age do you begin clinical breast exams?
- Does a family history of breast cancer change your recommendations for a woman with Down syndrome?



Breast Cancer in Down Syndrome

	Age-appropriate mammography rates ^{1,2}
Women with Down syndrome	50%*
Women in general population	95%

*89% of women in the same study received routine non-gynecological care¹



Breast Cancer in Down Syndrome

Frequency of breast cancer in women with Down syndrome

- Breast cancer is not less frequent in women with ID²⁰
- Women with DS have 75% lower risk of breast cancer compared to average risk women²¹



Breast Cancer in Down Syndrome

Study ^{7,22-26}	Cases of breast cancer/women with DS	Breast cancer as cause of death in women with DS
Chicoine et al 2015	2/684	
Hasle et al 2000	0/1278	
Hasle et al 2016	3/1602	
Patja et al 2001	0/102	
Scholl et al 1976		1/793*
Satgé et al 2001		5 vs 68.98 expected

*Men and women with DS



Breast Cancer in Down Syndrome

Case Reports ²⁷⁻³¹	
Dey et al 2017	25-year-old woman with DS found to have a breast mass on physical exam, found to be triple negative breast cancer, treated and no recurrence at time of publication
Bernardino et al 1997	53-year-old woman with DS (Robertsonian translocation causing trisomy 21) ductal infiltrating breast carcinoma with lymph node metastases
Satgé et al 2004	23-year-old woman with DS and spontaneous neurofibromatosis 1 presented with R breast lump and diagnosed with breast ca, at time of article in good health 14 years after surgical treatment
Shinohara et al 2023	35-year-old premenopausal woman with DS presented with L breast mass, found to be BRCA 2 positive (no family hx of breast or ovarian ca), died 59 months after mastectomy
Bratman et al 2014	**Middle-aged man with DS presented with mass, treated and doing well 57 months after surgery



Breast Cancer in Down Syndrome

Reason for decreased breast cancer rates unclear³⁰

- Lower Life Expectancy
- Reduced estrogen exposure/early menopause
- No alcohol/tobacco use
- Gene dosage effects³²



Breast Cancer in Down Syndrome

Role of family history

- No studies evaluating how a family history of breast cancer affect breast cancer risk/frequency in women with Down syndrome



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Breast Cancer in Down Syndrome

- Risks of mammographic screening
 - Radiation in women without Down syndrome:
 - Mammograms --> higher odds ratio for breast cancer risk³³
 - Studies concluded benefits outweigh risks of radiation in mammogram screening^{34,35}



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Breast Cancer in Down Syndrome

- Risks of mammographic screening
 - Radiation in women with Down syndrome:
 - May be at higher risk from radiation exposure than the general population³⁶
 - Risks/benefits of radiation exposure for breast cancer screening have not been studied



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Breast Cancer in Down Syndrome

- Risks of mammographic screening
 - Additional Testing
 - May require more anesthesia (higher risk of complications)²²



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Breast Cancer in Down Syndrome

Risks of mammographic screening

- Additional Testing
 - Statistical modeling shows³⁷:

	Per 1000 women with DS following Biennial Screening aged 50-74
False-positive mammograms	571
Benign biopsies	80

- Harm/benefit ratios for all mammographic screening were consistently less favorable for women with DS compared to average-risk women²¹



Breast Cancer in Down Syndrome

Risks of mammographic screening

- Trauma
 - At least 51 women could not cooperate with mammogram²²
- Cost – monetary and time²²
 - Years of life gained?
 - More time needed at appointment
 - Family or staff's time to accompany woman with Down syndrome



Breast Cancer in Down Syndrome

Some have proposed adapting screening guidelines for women with DS

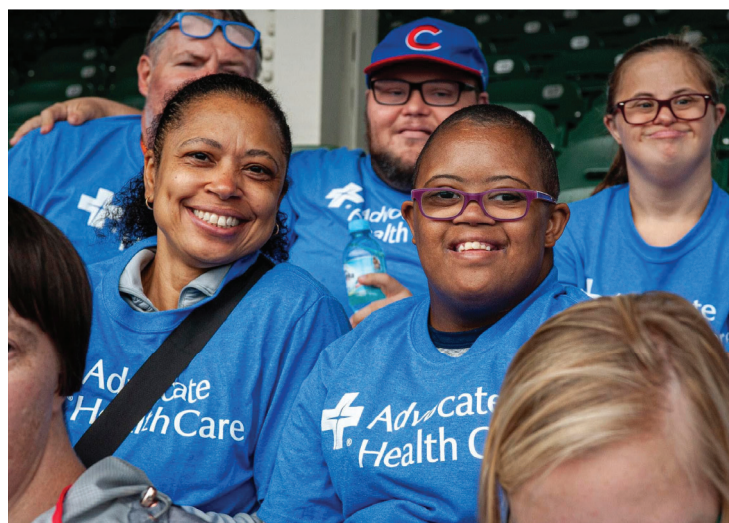
Author ^{5,19,21,37,38}	
Trentham-Dietz et al 2021	System level policies around mammography may need to be set differently for women with DS.
Rethoré et al 2020	Annual clinical monitoring with option for US or MRI in suspect cases
Satgé and Sasco 2002	Options include repeated clinical exams, US, or MRI
Alagoz et al 2019	Consider a modification of screening guidelines*
Wilson et al 2015	Consider foregoing mammography

*Study found the best harm/benefit ratio obtained for women with DS to undergo one-time screening mammography at age 50. However, this was still not as favorable as biennial screening between ages of 50-74 for average-risk women.



Breast Cancer in Down Syndrome

- To summarize...
 - Women with Down syndrome have:
 - Lower rates of breast cancer
 - More harms/fewer benefits from mammography screening
 - Unknown role of family history on overall breast cancer risk



Large Group Discussion Questions

- Should unique guidelines for breast cancer screening in women with Down syndrome be developed? If so, what should they be?
- How does a family history of breast cancer currently impact your counseling around breast cancer screening in women with Down syndrome?
- What data are missing from the literature around breast cancer in women with Down syndrome?



Hormonal Contraceptives in Down Syndrome

- I am 25 years old and I am here to talk about my periods. I have very heavy bleeding and lots of period cramps. I have tried ibuprofen and heating pads, but they are not helping. I am otherwise very healthy. I have celiac disease and I do a good job eating gluten free. I also have hypothyroidism and I take my medicine every day. I had heart surgery when I was a baby, and I see my cardiologist every year. I am not in any romantic relationships and have never had sex. One of my friends is on a birth control pill for her periods. Can I try that?



Participation Questions

- Would you prescribe a hormonal contraceptive for this patient? If so, what would you prescribe?
- Do you have any special considerations for women with Down syndrome and hormonal contraceptive use?
- Do you use any long-acting reversible contraceptives (LARC) in your patients with Down syndrome? If so, which ones?



Hormonal Contraceptives in Down Syndrome

Many reasons for prescribing contraceptives:

- Contraception
- Menorrhagia
- PMS/PMDD
- Etc.



Hormonal Contraceptives in Down Syndrome

- No studies evaluating combined oral contraceptives (COCs) in women with Down syndrome



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Hormonal Contraceptives in Down Syndrome

Side effects/risks of COCs ³⁹	Implications for women with Down syndrome
Increased risk of blood clot	Down syndrome may be risk factor for thromboembolism ⁴⁰ Higher rates of autoimmune conditions, which increase risk of blood clots ⁴¹
Increased risk of stroke	Higher risk of cardioembolic stroke ⁴² May be difficult to report migraine with aura
Elevated blood pressures	Lower rates of hypertension ⁴³
Ischemic heart disease	Lower rates ^{42,43} For history of congenital heart disease, may need to consult with cardiologist ⁴⁴
Possible, small increased risk of cervical and breast cancer ⁴⁵	Lower rates of solid tumor cancers
Drug interactions with some seizure meds	Higher rates of seizure disorders

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Hormonal Contraceptives in Down Syndrome

No studies evaluating
progesterone-only pills (POPs)
in women with Down syndrome



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Hormonal Contraceptives in Down Syndrome

- POPs
 - Can impair glucose metabolism in first 6 months of use³⁹
 - Most studies do not demonstrate increased risk of blood clots⁴⁶
 - Category 1 (no restrictions) for women with valvular heart disease⁴⁷



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Hormonal Contraceptives in Down Syndrome

Long-acting reversible contraceptives (LARC)

- Injectable progesterone
- Implantable progesterone
- IUD



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Hormonal Contraceptives in Down Syndrome

• Long-acting reversible contraceptives (LARC)

- Injectable progesterone
 - Weight gain
 - Loss of bone mineral density⁴⁸
 - Possible increase blood clot risk⁴⁶



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Hormonal Contraceptives in Down Syndrome

- Long-acting reversible contraceptives (LARC)
 - Implantable progesterone and progesterone-containing IUD's
 - Probably no increased risk of blood clot risk⁴⁶



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Hormonal Contraceptives in Down Syndrome

- LARC Considerations in Down Syndrome
 - Ability to:
 - Tolerate placement
 - Report discomfort/complications
 - Not studied in women with Down syndrome



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Hormonal Contraceptives in Down Syndrome

- To summarize...
 - Hormonal contraceptives have not been studied in women with Down syndrome
 - Women with Down syndrome may have different risks for side effects when using hormonal contraceptives
 - No studies evaluating use of LARC in women with Down syndrome

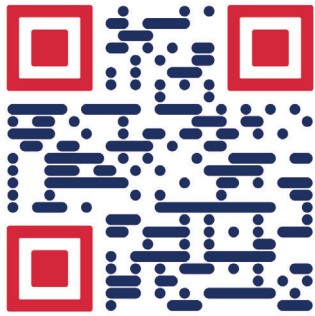


Large Group Discussion Questions

- Do you use COCs in women with Down syndrome? POPs?
- What counseling do you provide regarding oral contraceptives in women with Down syndrome?
- Do you use LARC in women with Down syndrome? What barriers do you face?
- What data are missing from the literature around hormone contraceptives in women with Down syndrome?



Resources



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INTRODUCTION

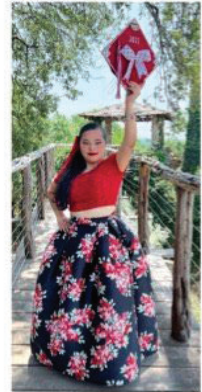
Down syndrome is the most common chromosomal condition diagnosed in the United States.¹ The mean life expectancy of a person with Down syndrome in 1950 was 26 years old; that mean has increased to 53 in the mid-2010s, although ethnic differences in life expectancy do persist, as a result of disparities in social determinants of health.² As the population of people living with Down syndrome grows, the understanding of the condition and its associated health differences continues to increase. In 2016, there were estimated to be 217,163 people with Down syndrome in the United States.³

Despite this increase in Americans with Down syndrome, it is estimated that only 5% of individuals aged 18 and older have access to a clinic specializing in caring for adults with Down syndrome.⁴ Most people with Down syndrome receive medical care from their primary care physicians.

Additionally, one study estimated that women with Down syndrome received substantially less gynecological health care compared to women without Down syndrome, and women with Down syndrome received less gynecological care compared to other forms of health care.⁵

To help address the need for improved health care for women with Down syndrome, this guide provides primary care providers with current data and information about their unique health care needs. It is arranged into cases to demonstrate how clinicians may encounter these topics. The cases presented are not actual patients but are based on frequently met concepts and questions.

This guide is informed by women with Down syndrome. Their participation, comments, and questions provide an underlying current to every topic. Their self-advocate perspectives will be outlined throughout the guide. They send an unapologetically clear message: life with Down syndrome is great!



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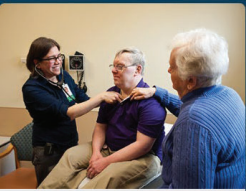
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