Been Diagnosed with Ovarian Cancer, Now What?

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Ovarian Cancer Statistics: 2018 US

- **22,240 new ovarian cancer diagnosis.**
- **14,070 ovarian cancer related deaths.**
- **5th cause of cancer related death among women.**
- **1st cause of gynecologic cancer related deaths.**
- **1:78 woman's risk of developing ovarian cancer during lifetime.**
- **1:108 lifetime chance of dying from ovarian cancer.**
- **Median age of diagnosis is about 63 years old.**
- **More common in white women than African-American women.**
- **Rate of diagnosis has slowly been falling over the past 20 years.**

American Cancer Society

Factors: Increase Risk

- **Age**
- **Nulligravid or having children after age 35**
- **Early menarche, late menopause**
- **Infertility**
- **Caucasian**
- **High socioeconomic status**
- **North American/European origin**
- **Hormone replacement therapy after menopause (estrogen therapy alone)**
- **Family history of ovarian cancer, breast cancer, or colorectal cancer (first degree relative)**
- **Personal history of breast cancer**

Factors: Increase Risk

- **Family cancer syndrome** (About 5 to 10% of ovarian cancers):
  - **Hereditary breast and ovarian cancer syndrome**
    - Inherited mutations in the genes *BRCA1* and *BRCA2*.
    - Related to most inherited ovarian cancers.
    - About 10 times more common in those who are Ashkenazi Jewish.
    - Lifetime ovarian cancer risk *BRCA1* mutation is estimated to be between 35% and 70% and for *BRCA2* mutation is estimated to be between 10% and 30% by age 70.
  - **PTEN tumor hamartoma syndrome**
    - Cowden disease: primarily affected with thyroid problems, thyroid cancer, and breast cancer. There is also an increased risk of endometrial and ovarian cancer.
    - Caused by inherited mutations in the *PTEN* gene.
  - **Hereditary nonpolyposis colon cancer (Lynch Syndrome)**
    - High risk of colon cancer as well as increased risk of developing uterine and ovarian cancer.
    - Genes involved include *MLH1*, *MLH3*, *MSH2*, *MSH6*, *TGFBR2*, *PMS1*, and *PMS2.*
    - The lifetime risk of ovarian cancer in women with hereditary nonpolyposis colon cancer (HNPCC) is about 10%.

Factors: Increase Risk

- **Family cancer syndrome**:
  - **Peutz-Jeghers syndrome**
    - Rare genetic syndrome with increased risk for development of polyps in the stomach and intestine during teenage years.
    - High risk of cancer, particularly cancers of the digestive tract (esophagus, stomach, small intestine, colon).
    - Increased risk of ovarian cancer, including both epithelial ovarian cancer and a type of stromal tumor called *sex cord tumor with annular tubules* (SCTAT).
    - Caused by mutations in the gene *STK11*.
  - **MUTYH-associated polyposis**
    - Increased risk of development of polyps in the colon and small intestine and have a high risk of colon cancer.
    - More likely to develop other cancers, including cancers of the ovary and bladder.
    - Caused by mutations in the gene *MUTYH*.

Factor: Lower Risk

- **Pregnancy**
- **Breastfeeding**
- **Birth Control**
  - OCP’s
  - Tubal ligation
  - IUD’s.
- **Hysterectomy**
- **Removal of the Ovaries and Fallopian Tubes**

Factors: Unclear Risk

- **Androgens**
  - **There appears to be a link between certain androgens and specific types of ovarian cancer, but further studies of the role of androgens in ovarian cancer are needed.**
- **Talcum powder**
  - **Studies had looked at the possible link between talcum powder use and ovarian cancer. Findings have been mixed. Research in this area continues.**
- **Diet**
  - **Studies have shown a reduced rate of ovarian cancer in women who ate a diet high in vegetables or a low fat diet, but other studies disagree. Research in this area continues.**

Prevention?

Risk Reduction Surgery

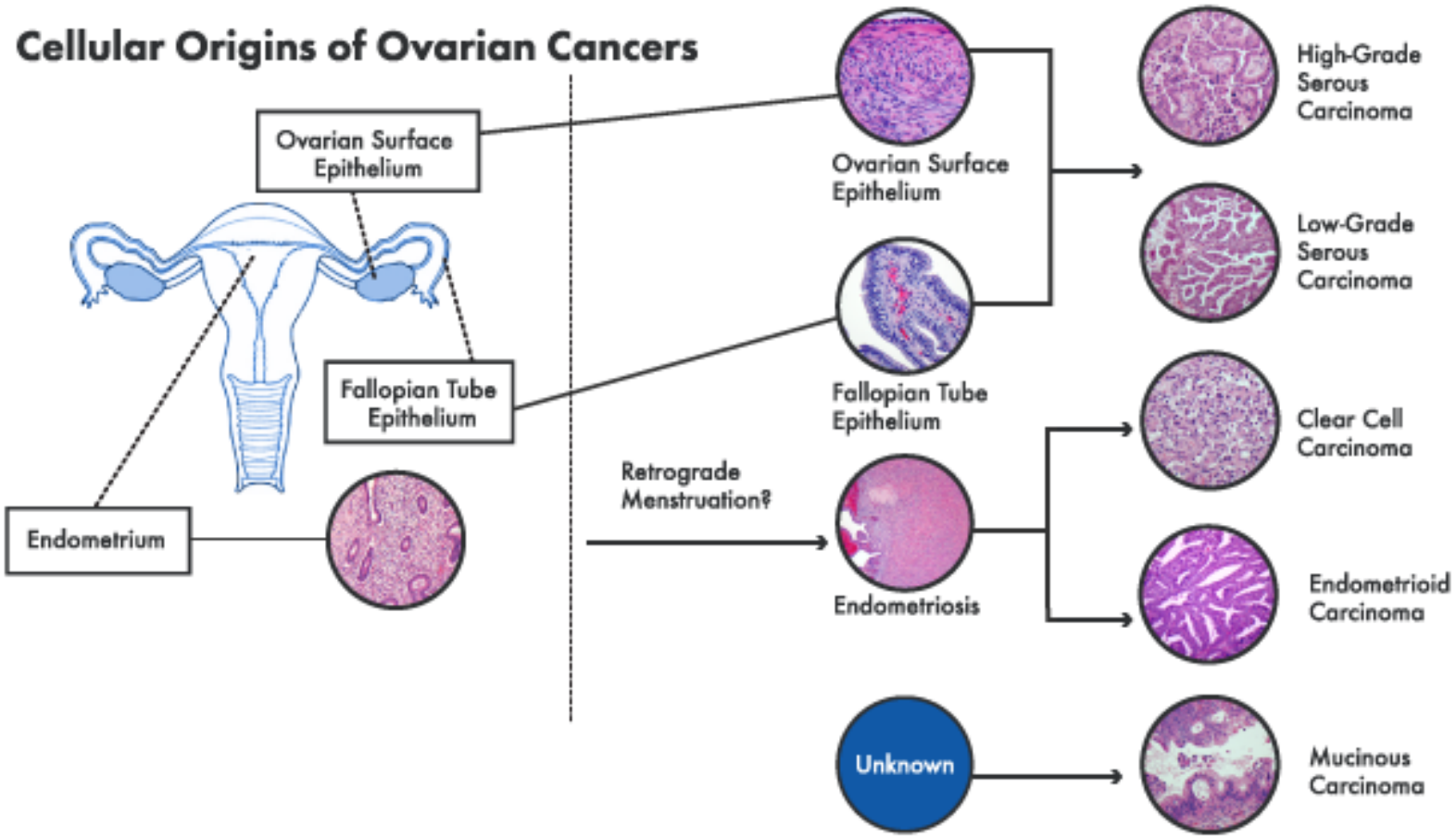
- **Removal of both tubes and ovaries (BSO) is recommended for genetic mutation carriers or high risk individuals by age 35 to 40 or when childbearing is completed, or**
- **Individualized based on age of onset of ovarian cancer in the family**
- **BSO decreases the risk of both breast cancer and ovarian cancer among genetic mutation carriers**

Risk Reducing Surgery:
Why not in the General Population?

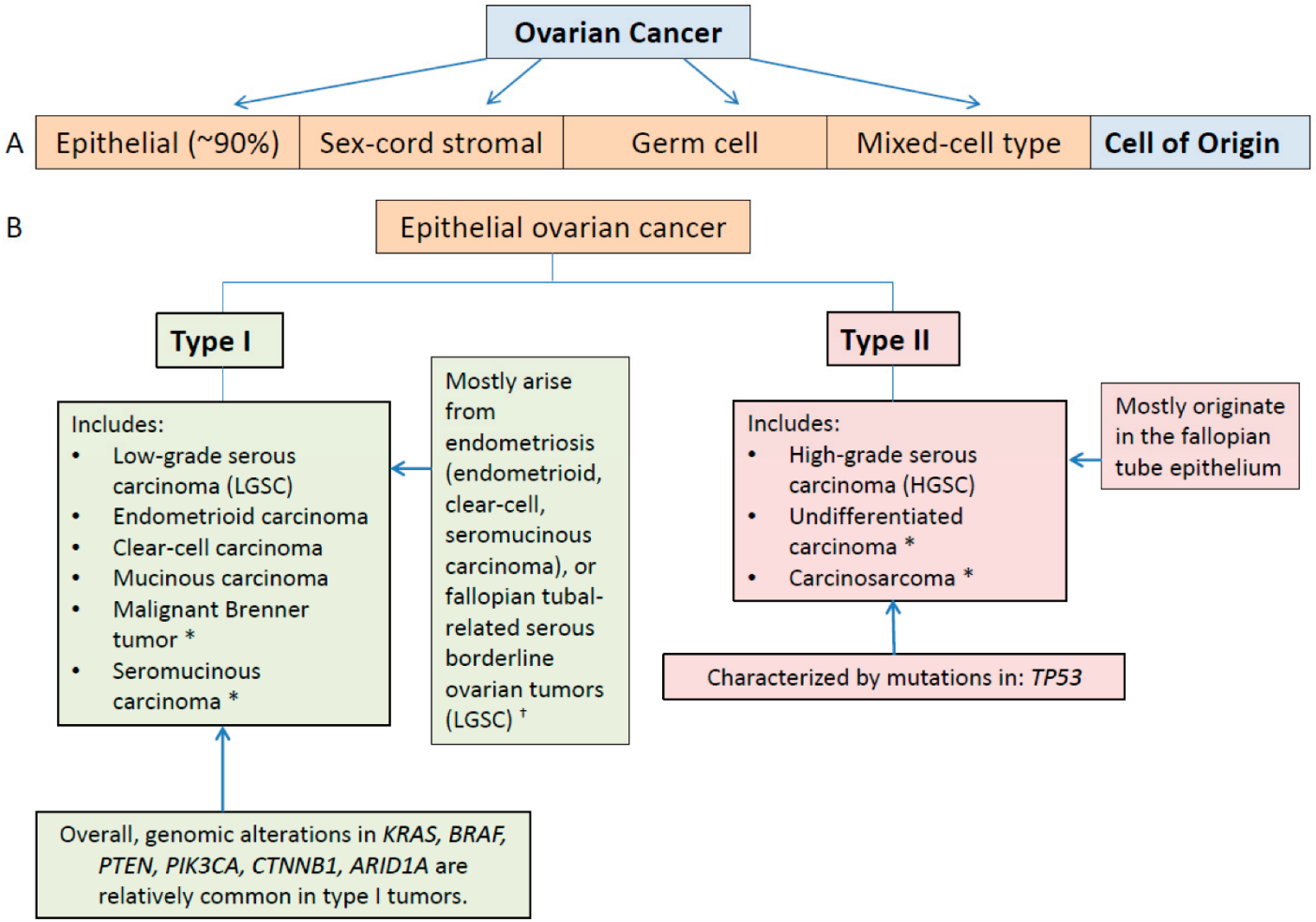
- **Estimated approximately 300 prophylactic oophorectomies would have to be performed to prevent a single case of ovarian cancer.**

Averette et al., Gynecol Oncol. 1994

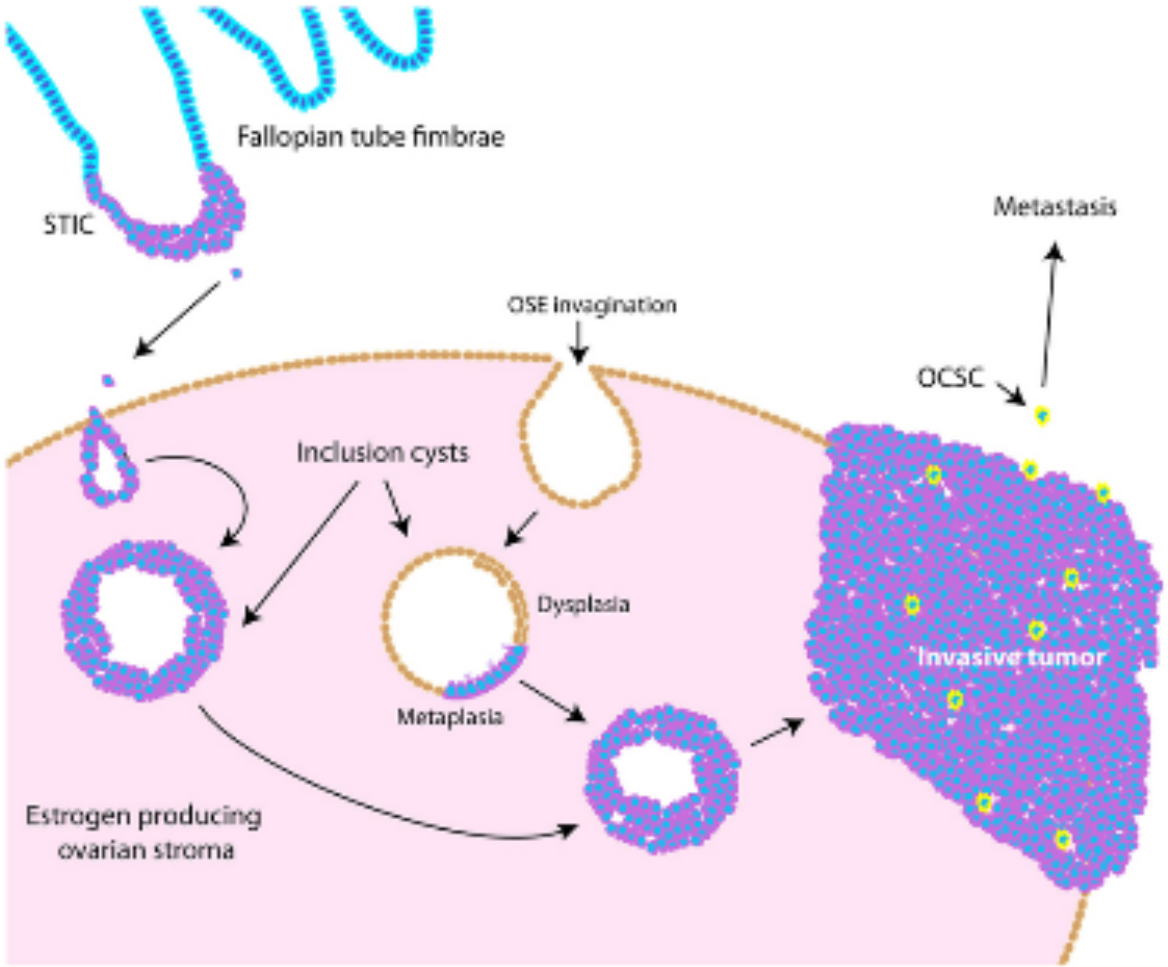
Ovarian Cancer Origins



Epithelial Ovarian Cancer



Fallopian Tube Origin



Ovarian Cancer Diagnosis

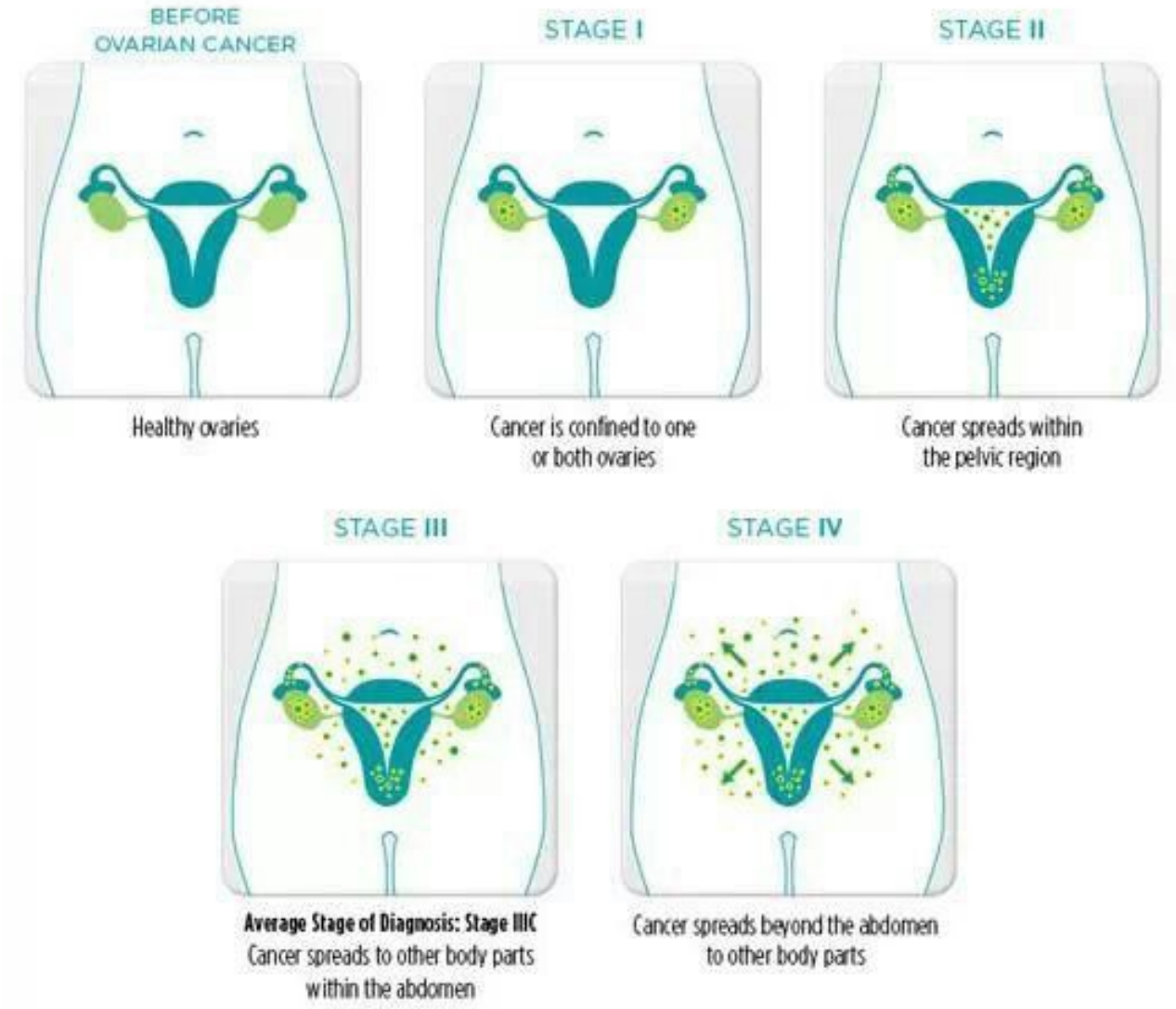
- **Symptom Assessment**
- **Physical Exam**
- **CA-125 serum levels**
- **Transvaginal Ultrasound**
- **Abdominopelvic CT or MRI**

Signs and Symptoms

- **Symptoms are non-specific**
  - **Bloating, fullness, pressure (70-80%)**
  - **Gastrointestinal (70%)**
  - **Constitutional (50%)**
  - **Urinary (34%)**
- **Symptomatic: Stage I/II 89%**
  Stage III/IV 97%

Olson et al. Obstet Gynecol 2001;98:212.
Goff et al. Cancer 2000; 89:2068-2075.

Ovarian Cancer Staging



Ovarian Cancer: Patterns of Spread

1. **Direct Extension**
   - **pelvic organs**
   - **simultaneous with other metastases**
2. **Intraperitoneal Dissemination**
   - **exfoliation of tumor cells**
   - **peritoneal flow pattern**
3. **Lymphatic Metastases**
4. **Hematogenous Spread**

Surgical Management

Pelvis

- **TAH+BSO**
- **Pelvic lymph node dissection**
- **Ablation or resection of peritoneal nodules**

Abdomen

- **Infracolic omentectomy**
- **Appendectomy**
- **Para-aortic lymph node dissection**
- **Ablation or resection of peritoneal nodules**

Radical Surgical Management

Pelvis

- **Radical oophorectomy**
- **Rectosigmoid colectomy**
- **Debulking of pelvic lymph nodes**
- **Resection of bladder / ureter**
- **Resection of ileac vessels**

Abdomen

- **Total omentectomy**
- **Partical gastrectomy**
- **Splenectomy**
- **Distal pancreatectomy**
- **Diaphragmatic peritonectomy**
- **Diaphragmatic resection**
- **Liver resection**
- **Debulking of para-aortic lymph nodes**
- **Nephrectomy**

Cytoreductive Surgery

Theoretical Benefits

- **Improved vascularity / oxygenation**
  - **delivery of chemotherapy**

- **Removal of chemotherapy resistant cells**

- **Tumor growth kinetics**
  - **increased growth fraction of remaining tumor cells**

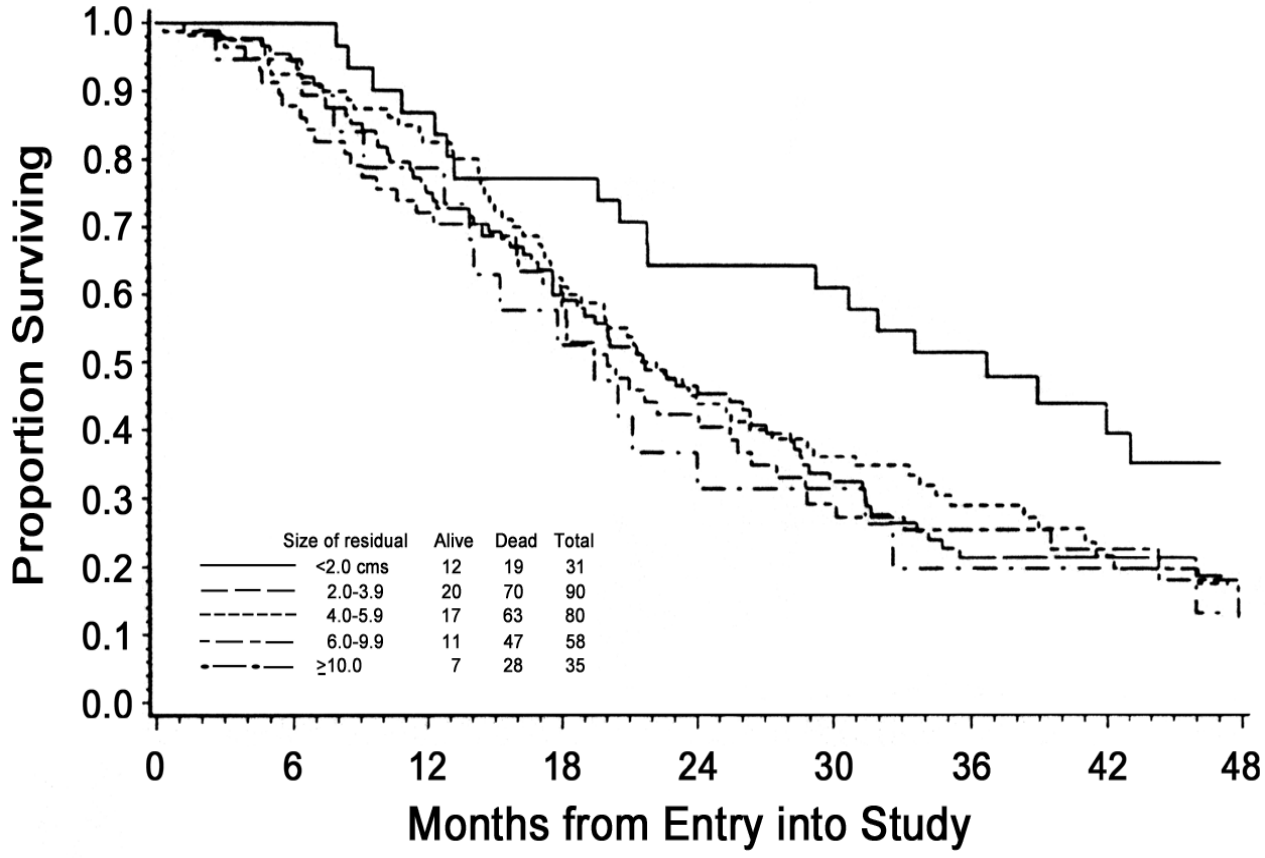
Cytoreductive Surgery

Clinical Benefits

- **Quality of Life**
  - **comfort level**
  - **relief of potential bowel obstruction**
  - **reduce adverse metabolic effects**
- **Survival ≅ Residual Disease**

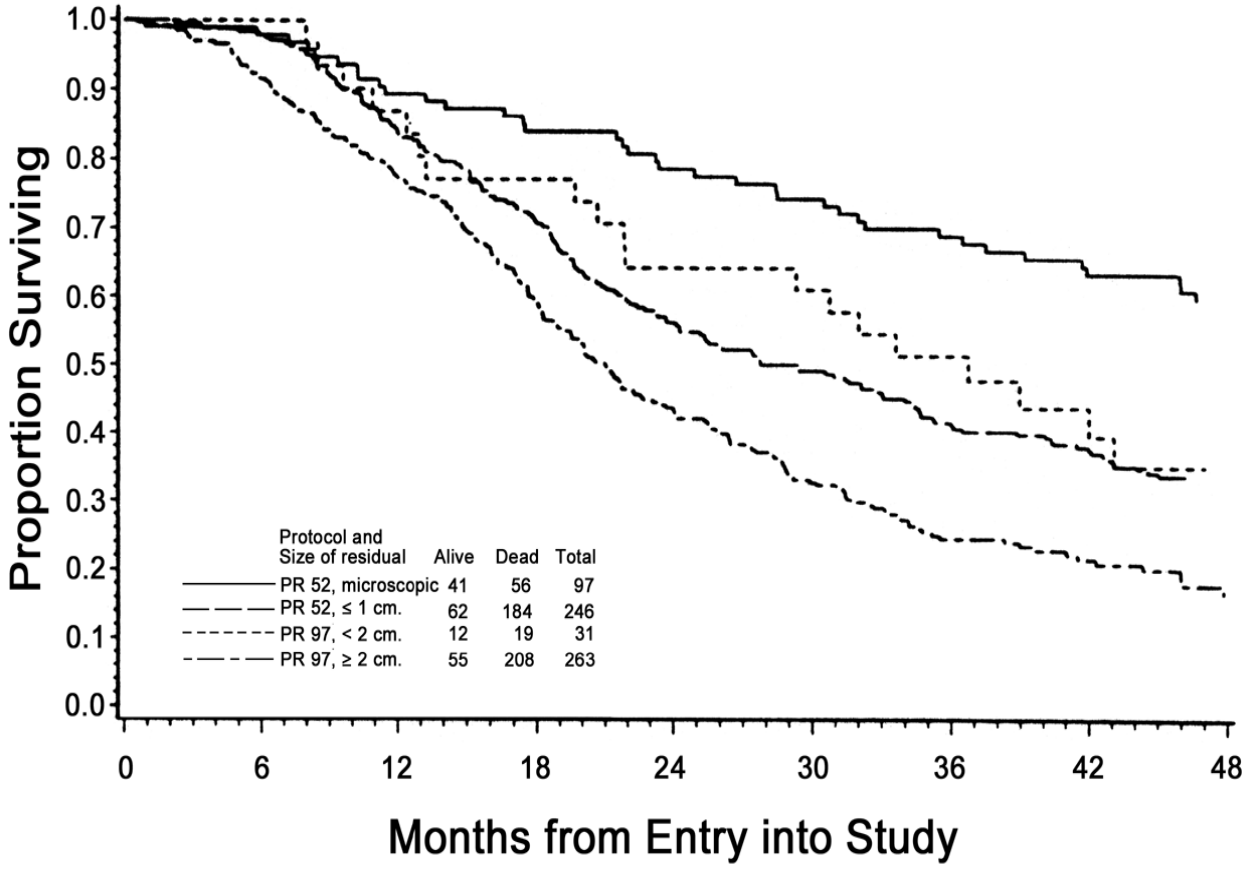
Cytoreductive Surgery: Survival

GOG 97



Cytoreductive Surgery: Survival

GOG 52/97 Summary



Cytoreductive Surgery - Survival

GOG 52 / 97 Summary

- **Cytoreduction ≠ tumor biology**
- **Survival determinants - multifactorial**
- **Three distinct groups**

	Survival (5yr)
no gross residual	60%
optimal (≤ 2cm)	35%
suboptimal (> 2cm)	20%

- **Microscopic residual should be the goal**

Median OS Ovarian Cancer Cytoreductive Surgery

Residual Disease	Stage IIB-IV[a]	Stage III[b]	Stage III[c]	Stage IIIC-IV[d]	Stage IV[e]	Stage IV[f]
Microscopic	73+ mo	72 mo	106 mo	45 mo	64 mo	72 mo
0.1-1.0 cm	37 mo	42 mo	59 mo	32 mo	29 mo	32 mo
> 1 cm	31 mo	35 mo	33 mo	25 mo	31 mo	20 mo

[a]Wimberger et al. 2007.[24]
[b]Winter et al. 2007.[26]
[c]Chi et al. 2006.[28]
[d]Vergote et al. 2010.[30]
[e]Winter et al. 2008.[27]
[f]Rauh-Hain et al. 2011.[29]

Complete resection in the Gyn-Oncology ranges from 15%-30% of patients taken to surgery

Cytoreduction

- **Factors limiting the ability to achieve optimal cytoreduction may be technical or related to poor performance status:**
  - **Presence of extraabdominal or retroperitoneal disease, or large tumor bulk**
  - **Bowel involvement**
  - **Parenchymal liver involvement**
  - **Presence of ascites**
  - **Poor nutritional state**
  - **Comorbid conditions**

Cytoreduction

- **Can we predict who can be cytoreduced?**
  - **Tumor markers or molecular factors**
  - **Imaging studies**
  - **Patient characteristics**
  - **Diagnostic laparoscopy**

Neoadjuvant Chemotherapy

- **Treatment of tumor with chemotherapy drugs prior to surgery to decrease the bulk of the tumor**
- **Standard chemo with carboplatin and paclitaxel**
- **Reassessment after 3 treatments with imaging studies and physical exam**
- **If adequate response proceed with interval cytoreductive surgery**

Neoadjuvant Chemotherapy

- **No difference in progression-free survival (PFS, 12 months in both groups).**
- **Similar overall survival (neoadjuvant: 29 and initial surgery: 30 months).**
- **Improved proportion of patients who achieved an optimal cytoreduction (81 vs. 42 %).**
- **No improvement on the five-year overall survival rates.**
- **Lower rate of complications.**

Vergote I, et al. N Engl J Med. 2010;363(10):943.

Gynecologic Oncology Group 172

- **Optimal cytoreduction (<1cm) in stage III ovarian cancer**
- **Established 1st line therapy for IP chemotherapy**
  - **IV/IP cisplatin + paclitaxel**
  - **Standard IV carboplatin + paclitaxel**
- **Despite results not widely used**
  - **Toxicity**
  - **Complications**

	IV chemo	IV/IP chemo
Progression-free survival	18.3 mos	23.8 mos
Overall survival	49.5 mos	66.9 mos

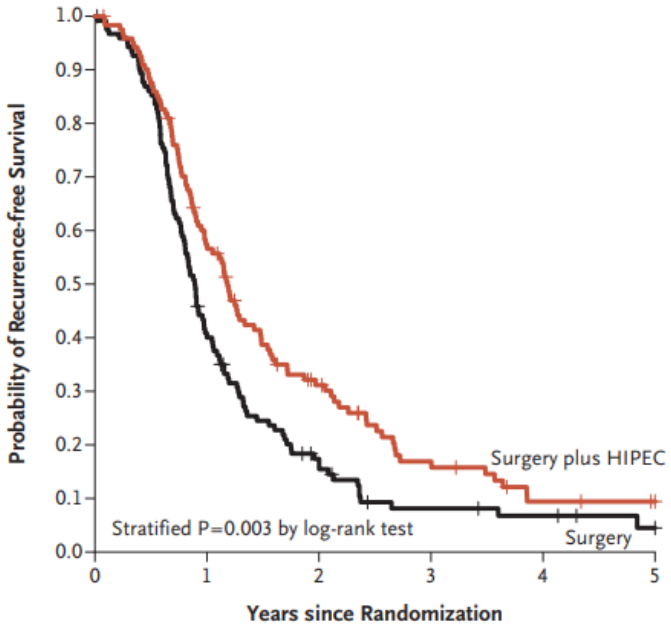
Armstrong et.al. 2002

HIPEC in Ovarian Cancer: NEJM

Multicenter – Phase III Trial

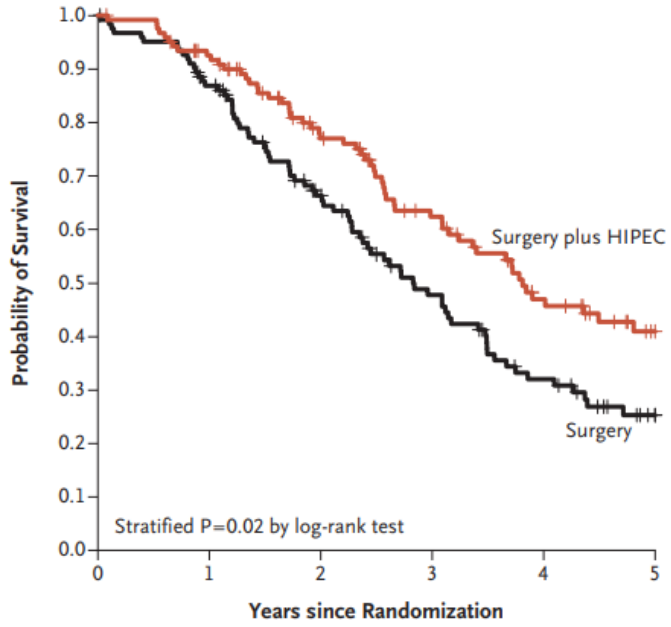
245 patients

Recurrence-Free Survival



No. at Risk						
Surgery	123	48	18	7	5	2
Surgery plus HIPEC	122	67	31	15	7	5

Overall Survival



No. at Risk						
Surgery	123	103	70	44	27	12
Surgery plus HIPEC	122	108	79	56	37	20

Van Driel et al, NEJM 2018; 378:230-40

What Happens When You Are Diagnosed With a Ovarian Cancer?

What To Do Next?

Keep Calm & Breath

What To Do Next?

- **Find a partner.**
  - **spouse/partner, family member or close friend, someone you can talk to openly about serious issues.**
- **Get organized.**
  - **Start a notebook or binder to coordinate appointments, doctors' phone numbers, and the information you collect along the way. Take it with you to each medical appointment, and keep notes of your test results and treatment options. Start a running list of questions to ask your doctor on your next visit.**
- **Get informed.**
  - **Take steps to learn more about your cancer diagnosis and treatment options -- but do so at a pace that is comfortable for you. Be sure to consult only unbiased, trustworthy sources when you do your research.**
- **Consider a second opinion.**
  - **Cancer treatment is complicated. A second opinion can also help you feel more confident in your treatment plan.**

What To Do Next?

- **Try to keep life as normal as possible.**
- **Stay positive. However, expressing your feelings -- even ones that seem negative -- is even more important.**
- **Learn to rely on others.**
- **Consider speaking with a mental health professional, particularly if you are depressed or anxious. Therapy can help relieve the stress of a cancer diagnosis, and give you a safe place to express your fears and hopes for the future.**

Team Based Care

Team-based care is defined by the National Academy of Medicine (formerly known as the Institute of Medicine) as "...the provision of health services to individuals, families, and/or their communities by at least two health providers who work collaboratively with patients and their caregivers—to the extent preferred by each patient - to accomplish shared goals within and across settings to achieve coordinated, high-quality care."

National Academy of Medicine

Team Based Care

- **Potential to improve the:**
  - **Comprehensiveness**
  - **Coordination**
  - **Efficiency**
  - **Effectiveness**
  - **Value of care**
  - **Satisfaction of patients and providers**

Team Based Care

- **Members:**
  - **Primary Care Provider (Family Physician, Internist, Nurse Practitioner)**
  - **Gynecologic Oncologist**
  - **Surgical Oncologist**
  - **Medical Oncologist**
  - **Social Worker**
  - **Nutritionist**
  - **Physical therapist**
  - **Psychologist/Psychiatrist**
  - **Palliative Care Provider**

Building Your Team

- **There is no formula to make the best selection.**
- **Choose a doctor you feel comfortable with:**
  - **Languages spoken**
  - **Gender**
  - **Ethnicity**
  - **Educational background**
  - **Personality**
  - **Bedside manner**
  - **Experience (Volume of care managed as well as personal statistics and reports)**

Be a Self Advocate

- **Keep a personal medical record**
- **It should include:**
  - **Diagnosis (Cancer type and stage)**
  - **Date of diagnosis and treatment**
  - **Copy of diagnostic test and pathology results**
  - **Complete treatment information (chemotherapy drug names and doses or site and doses of radiation therapy)**
  - **Treatment results, including complication and side effects**
  - **Information about supportive care**
  - **Complete contact information for doctors and treatment centers**

Be a Self Advocate: What to Ask

- **General information**
  - **What type of cancer do I have?**
  - **Where exactly is it located?**
  - **What are the risk factors for this disease?**
  - **Is this type of cancer caused by genetic factors? Are other members of my family at risk?**
  - **How many people are diagnosed with this type of cancer each year?**
  - **What lifestyle changes (diet, exercise, rest) do you recommend I make to stay as healthy as possible before, during, and after treatment?**
  - **Where can I find more information about my cancer?**

Be a Self Advocate: What to Ask

- **Symptoms**
  - **What are some common symptoms or side effects of this type of cancer?**
  - **How can I avoid these and/or manage them with my daily activities?**
  - **Is there anything that can be done to make my symptoms or side effects better?**
  - **Are there activities that may make them worse?**
  - **If new symptoms or side effects arise or existing ones worsen, what should I do?**

- **Diagnosis**
  - **What diagnostic test / procedures are necessary? How often?**
  - **What information will these tests tell us?**
  - **How can I prepare myself for each test or procedure?**
  - **Where do I need to go to have this test?**
  - **When will I get the results? How will I get the results (over the phone, at the next appointment, etc.)?**
  - **Can you explain my pathology report (laboratory test results) to me?**
  - **If I seek a second opinion, will I have to repeat any tests or procedures?**
  - **How much information about my diagnosis should I share, and at what time, with my friends and loved ones?**

Be a Self Advocate: What to Ask

- **Staging**
  - **What is the stage of my cancer? What does this mean?**
  - **Has cancer spread to my lymph nodes or anywhere else?**
  - **How is staging used to find out cancer treatment?**
  - **What is my prognosis (chance of recovery)?**

- **Treatment**
  - **What are my treatment options?**
  - **Which treatments, or combination of treatments, do you recommend? Why?**
  - **What is the goal of the treatment you are recommending?**
  - **What clinical trials (research studies involving people) are open to me?**
  - **Who will be part of my treatment team, and what does each member do?**
  - **How much experience do you (or the treatment team) have treating this type of cancer?**
  - **Will I need to be hospitalized for treatment, or is this treatment done in an outpatient clinic?**
  - **What is the expected timeline for my treatment plan? Do I need to be treated right away?**
  - **How will this treatment affect my daily life? Will I be able to work, exercise, and perform my usual activities?**
  - **What are the short-term side effects of this treatment?**
  - **What long-term side effects may be associated with this cancer treatment?**
  - **Will this treatment affect my fertility (ability to become pregnant or father children)?**
  - **Besides treating cancer, what can be done to treat my symptoms?**
  - **How can I keep myself as healthy as possible during treatment?**

Be a Self Advocate: What to Ask

- **Clinical trials**
  - **What are clinical trials?**
  - **How do clinical trials help people with cancer?**
  - **Is this a treatment option for me?**
  - **What happens during a clinical trial?**
  - **What are the benefits and risks of participating in a clinical trial?**
  - **How will I be monitored while participating in a clinical trial?**
  - **What are my responsibilities during the clinical trial?**
  - **Are there any costs associated with my participation in a clinical trial?**
  - **Where can I learn more about clinical trials?**

- **Support**
  - **What support services are available to me? To my family?**
  - **Whom should I call with questions or concerns during non-business hours?**
  - **May I contact you or the nurse to talk about additional information I find?**
  - **Can you recommend a social worker to help locate support services?**
  - **Where can I find resources for children? For teenagers? For young adults? For older adults?**
  - **If I'm worried about managing the costs related to my cancer care, who can help me with these concerns?**
  - **Who handles health insurance concerns in your office?**

- **Follow-up care**
  - **What follow-up tests do I need, and how often will I need them?**
  - **Is there anything else I should be asking?**

Wellness Plan: How to Develop one after completion of therapy?

- **A wellness plan is a plan of action geared toward the achievement of personal wellness.**
- **Personal wellness implies a state of multidimensional health and satisfaction.**
- **There are many aspects, or dimensions, to personal wellness, and they must each be developed and maintained for optimal overall well being.**
- **Wellness plans take all of those aspects into consideration, and are tailored to the individual.**

Wellness Plan Development

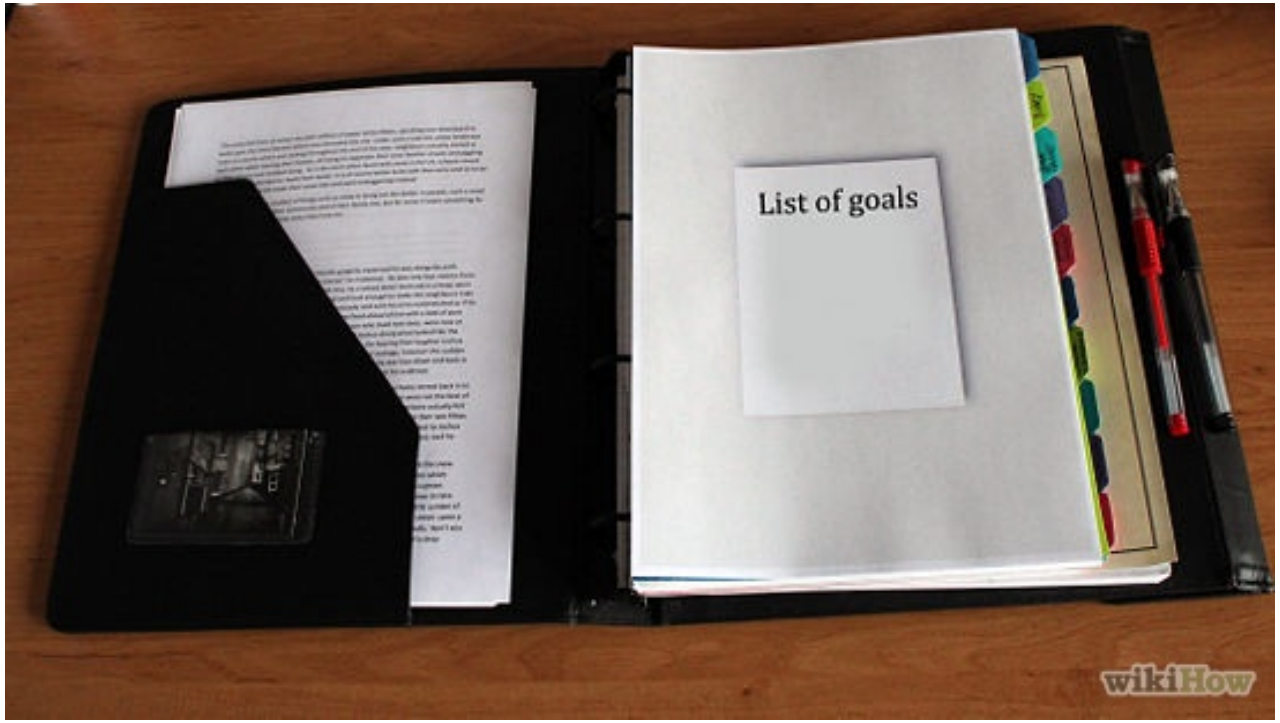
- **Assess your wellness:**
  - **Emotional wellness**
  - **Social wellness**
  - **Intellectual wellness**
  - **Spiritual wellness**
  - **Mental wellness**
  - **Financial wellness**
  - **Physical wellness**
  - **Occupational wellness**
  - **Environmental wellness**
  - **Medical wellness**

Wellness Plan Development

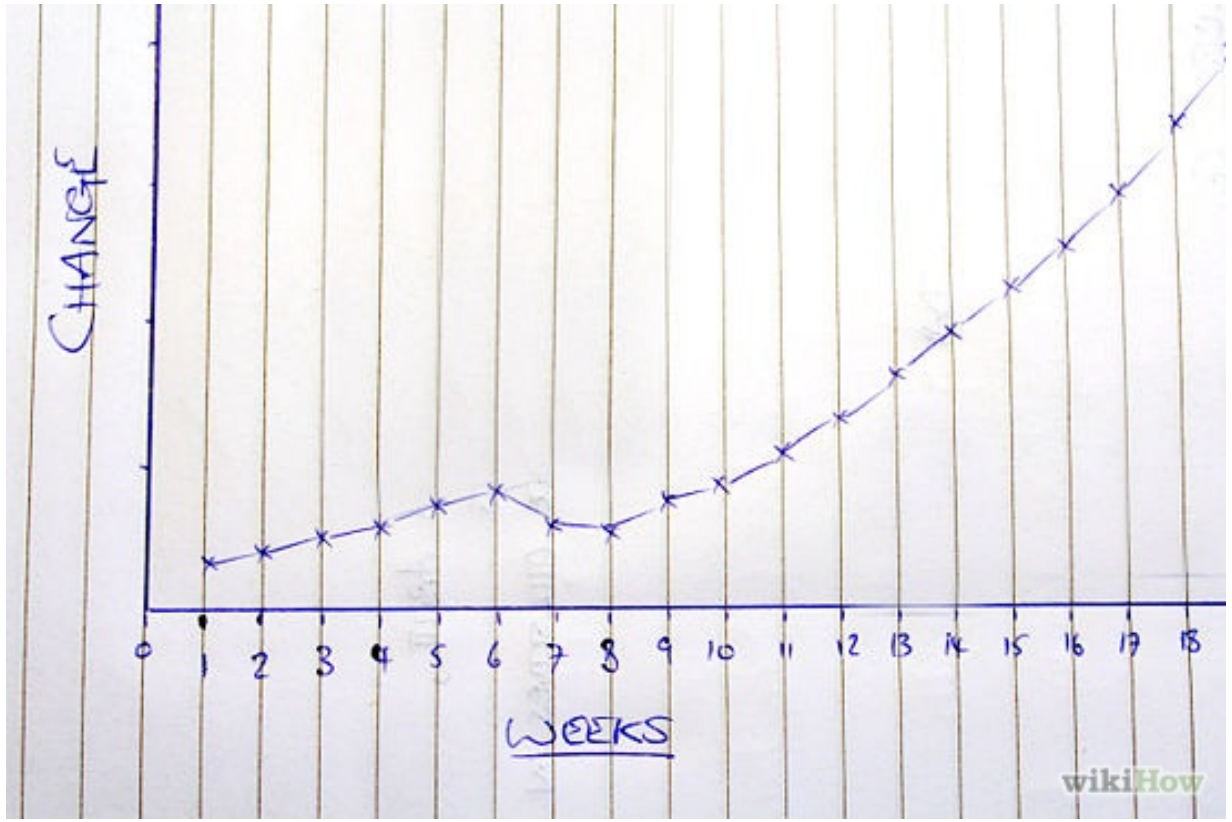
- **Identify areas that could use improvement.**
- **Be honest with yourself about how satisfied you feel in each aspect of wellness so that you can create a wellness plan tailored to your needs.**

Wellness Plan Development

- **Set goals related to improvements you want to make.**
- **Once you identify the areas that you feel you need to work on, write down specific goals to accomplish in each area that will move you toward greater overall well being.**



Wellness Plan Development



- **Record your progress.**
- **Keep a chart or a journal outlining each aspect of personal wellness and the goals you set to improve on those aspects.**
- **Mark important dates and checkpoints in a calendar designated specifically for the purpose of your personal wellness plan so that you can see your progress.**

Wellness Plan Development

- **Update the goals of your wellness plan as needed.**
- **As you develop greater personal wellness, you may find that it is taking a longer or shorter time than you'd planned to reach certain goals, or that some goals are no longer inside the scope of what you want to accomplish.**
- **Monitor your progress and reassess your needs frequently so as to keep your wellness plan as tailored to your growth as possible.**

Life is a Journey

Is up to us to decide the road to follow