

Implementation of Choosing Wisely in gynecology and obstetrics internship

Implementação da campanha *Choosing Wisely* no estágio de ginecologia e obstetrícia

Dilton Rodrigues Mendonça¹ 

Milena Bastos Brito² 

Carolina Villa Nova Aguiar³ 

Liliane Lins-Kusterer⁴ 

Ana Carolina Fonseca Scavuzzi⁵ 

Marta Silva Menezes⁶ 

^{1,2,5,6} Escola Bahiana de Medicina e Saúde Pública (Salvador). Bahia, Brazil.

³Corresponding author. Escola Bahiana de Medicina e Saúde Pública (Salvador). Bahia, Brazil. carolinaaguiar@bahiana.edu.br

⁴Universidade Federal da Bahia (Salvador). Bahia, Brazil.

ABSTRACT | INTRODUCTION: Throughout undergraduate school, it is important to instill a continuous emphasis on cost-conscious thinking across all specialties, including obstetrics and gynecology (OB/GYN). One potential strategy is the implementation of the Choosing Wisely (CW) Campaign. **OBJECTIVE:** To describe and assess the implementation strategies of the Choosing Wisely (CW) campaign within a medical internship in Obstetrics and Gynecology (OB/GYN). **METHODS:** This intervention study involved medical teachers and undergraduate medical students at a Brazilian medical school. Initially, teachers identified three common unnecessary clinical scenarios, which were then grouped and adapted to fit the CW recommendation format. Based on the five most frequently occurring recommendations, educational activities were developed, including workshops, banners, and discussions on cost-consciousness in healthcare with undergraduate students and medical doctors. **RESULTS:** The top five recommendations were as follows: 1. Don't routinely order hormone levels for menopause diagnosis; 2. Don't recommend ovarian removal during hysterectomy for premenopausal women without ovarian cancer risk; 3. Don't prescribe broad-spectrum antibiotics for uncomplicated acute cystitis treatment; 4. Don't request preventive examinations for colpitis diagnosis; and 5. Don't request unnecessary exams during low-risk prenatal care, such as kidney and liver function tests. The theoretical and practical components of these educational activities led to increased awareness and subsequent discussions among internship faculty and undergraduate students. **CONCLUSION:** Implementation of the CW campaign within the medical internship in OB/GYN resulted in a positive impact, fostering reflection among participants and aiding in the avoidance of unnecessary treatments or prescriptions.

KEYWORDS: Internship. Gynecology. Obstetrics. Medical Education.

RESUMO | INTRODUÇÃO: Durante o período de graduação, é necessário implementar a exposição contínua ao pensamento custo-consciente em todas as especialidades, incluindo a ginecologia obstetrícia (GO). A Campanha *Choosing Wisely* (CW) é uma das estratégias possíveis. **OBJETIVO:** Descrever e avaliar as estratégias de implementação da campanha *Choosing Wisely* (CW) no estágio médico em Ginecologia e Obstetrícia (GO). **MATERIAIS E MÉTODOS:** Estudo de intervenção com professores e estudantes de graduação de uma escola médica. Inicialmente, os professores identificaram três situações desnecessárias que comumente ocorrem na prática clínica, que foram agrupadas e adaptadas ao formato de recomendação da CW. Com base nas cinco recomendações mais frequentes, foram desenvolvidas atividades educativas, com oficinas, banners e discussões sobre custo-consciência em saúde com alunos de graduação e professores. Adotamos questionários on-line avaliar a intervenção do estudo. **RESULTADOS:** As cinco principais recomendações identificadas pelos especialistas foram: não indique avaliação hormonal de forma sistemática para o diagnóstico de climatério; não indique a remoção de ovários na histerectomia em mulheres pré-menopáusicas sem risco de câncer de ovário; não prescreva antibióticos de largo espectro para tratamento de cistite aguda sem complicações; não solicite "preventivos" para o diagnóstico de colpites e não solicite exames desnecessários durante o pré-natal de baixo risco como avaliação renal e hepática. Os elementos teóricos e práticos das ações educativas resultaram em um processo de conscientização e discussões entre os docentes e estudantes do estágio. **CONCLUSÃO:** A campanha CW no estágio médico em GO resultou em uma reflexão positiva, ajudando a evitar tratamentos ou prescrições desnecessárias.

PALAVRAS-CHAVE: Estágio. Ginecologia. Obstetrícia. Educação Médica.

1. Introduction

Over-testing, using non-recommended screening tests in asymptomatic patients, or requesting more testing than necessary is, unfortunately, increasingly in health services. There are at least five reasons to explain over-testing: belief in the possibility of detecting subclinical diseases when ordering many tests; exercising a defensive medicine; lack of confidence or knowledge, meeting patients' expectations and professional profit.¹

In the United States, healthcare spending is higher than in other high-income countries, being a major concern. The US spent 18.8% of its gross domestic products on health care in 2016, while other developed countries such as Australia and Switzerland spent 9.6% and 12.4%, respectively.² In 2011, US\$ 750 billion was wasted on unnecessary health services, and physician decisions represented 80% of all healthcare expenditures.³

In Brazil, in 2015, about 40% of laboratory-ordered tests were unnecessary, resulting in a health care waste of \$ 2.610 billion.⁴ Therefore, overuse and waste in health care are problems around the world, which afflict rich and poor countries alike and represent a great amount of the high cost of health care.⁵

There is a growing effort to adopt practices that could enhance healthcare ethical values and avoid overuse and waste behaviors. In 2012, the American Board of Internal Medicine (ABIM) began the Choosing Wisely (CW) campaign, which aimed to stimulate dialogue between clinicians and patients, avoiding unnecessary conduct. Nine medical specialty societies have joined the ABIM and each one developed a list of five tests, treatments, or services that are commonly used in that specialty but are overused or wasted in health care.⁶

Medical specialties, including gynecology and obstetrics (GO), are engaged in protecting patients from unnecessary or excessive invasive interventions. In 2013, the American College of Obstetricians and Gynecologists⁷ joined the CW campaign, building a list of ten recommendations that should be evaluated

by patients and physicians, minimizing harm to patients, reducing waste in healthcare spending, and improving health care.

Culture change needs at least a period of at least five years to become self-sustaining. Not only physicians need to be trained to articulate the connections between CW theory and new behaviors, but also undergraduate medical students.^{3,5} During the undergraduate period, it is necessary to implement continuous exposure to CW's vision and goal with timely feedback on the learning process. To the best of our knowledge, there is no publication about the CW campaign in the area of Gynecology and Obstetrics in Brazil.⁸ We aimed to describe and evaluate the implementation of the CW campaign in a medical internship in Gynecology/Obstetrics.

2. Methods

An intervention study was conducted with medical teachers and internship students in Gynecology and Obstetrics at a private medical school. The internship in GO occurs in the ninth semester of the medical course, for eight weeks (320 hours).

We used online questionnaires, applying the Delphi⁹ technique, to build a list of specialist recommendations. We asked all specialists to describe three unnecessary situations that commonly occur in gynecology and obstetrics practice, which may result in overuse or waste in health care. We conducted a panel of specialists to group situations by frequency and theme. All recommendations were adapted to the CW campaign format. Repeated themes or inappropriate recommendations were excluded, obtaining 16 items. Out of these 16, the specialists selected the top five recommendations by e-mail, ranking each item by a Likert-type scale¹⁰ (4: strongly agree, 3: agree moderately, 2: disagree moderately, 1: strongly disagree). We used the top five recommendations as a guide for educational interventions. We applied an Objective Structured Clinical Examination (OSCE) model evaluation before the introduction of the

CW campaign (110 students) and after a one year period of the campaign implementation. The OSCE evaluation used clinical cases with images and video, based on the recommendations.

We implemented the CW campaign in a one year period. All GO internship students and teachers have participated in the CW educational interventions. First, we conducted a two-hour workshop, using audiovisual resources and an active learning methodology. Educational activities included a presentation of objectives, workshop steps, and CW campaign in GO; the five items ranked by GO specialists were discussed, applying evidence-based justifications; after workshop conclusions, we discussed its contents. Subsequently, the students answered an online questionnaire, evaluating the presentation of the campaign; the quality of presentation, educational activities, and discussions. During the CW campaign, we placed banners in the internship environment with the top five propositions in GO; also, the CW campaign was spread, using the institution's communication channels (literature and videos about the recommendations); we also implemented in theoretical-practical activities the theme of the CW campaign.

At the end of the GO internship (10th semester), we conducted a theoretical evaluation, using a clinical case, applying the top five recommendations in a reflective context. We also conducted the second OSCE evaluation. We compared two groups: the intervention group who participated in the educational actions during a one-year period (98 students), and the control group who performed the same evaluation before the implantation of the CW campaign (110 students). For campaign evaluation, a SurveyMonkey link questionnaire was sent to teachers and undergraduate medical students by e-mail.

Results were described using descriptive statistics, distribution by frequency and percentage for categorical variables and in mean and standard

deviation or median and interquartile range (IQR) for quantitative variables. The chi-square test was used to compare the performance of the two groups of students. We used SPSS version 23.0 for data analyses. The specific Equator checklist for reporting evidence-based practice in educational interventions and teaching (GREET) was used.¹¹ This study was approved by the Ethics Review Board of the Bahiana School of Medicine and Public Health, number 1893262. All volunteers have signed a consent form. It is in accordance with the Helsinki Declaration and with the Brazilian National Health Council Resolution 466/2012.

3. Results

The panel of specialists was composed of 11 physicians. The median age was 55 years (IQR: 49-64), with a predominance of male gender (63.6%). The median graduation time of specialists was 31 years (IQR: 25-34) and a majority (90.1%) of them worked in public and/or private hospitals. A percentage of 54.4% reported prior knowledge of the CW campaign.

Ninety-eight out of the 102 students enrolled in the 9th semester participated in the study, with a median age of 23 years (IQR: 22-24) and a predominance of females (64%). We disconsidered three undergraduate students who did not complete the questionnaires fully and one who participated in the Choosing Wisely research group at the institution.

The specialists indicated three unnecessary situations that commonly occur in clinical practice, resulting in 33 items. We excluded three of them due to the absence of theoretical bases and generalized approach, and 14 were repeated themes. We obtained 16 items, which were adapted to the CW campaign format. We sent back the 16 items to the specialists, using the Likert-type scale, to choose the top five items described in Table 1.

Table 1. Frequencies of the 16 recommendations suggested by 11 specialists of internship in Gynecology and Obstetrics from a medical school, Salvador, Bahia, 2018 (to be continued)

Nº	Items	Total score	Strongly agree N (%)	Agree moderately N (%)	Disagree moderately N (%)	Strongly disagree N (%)
1	Don't routinely order hormone levels for menopause diagnose.	44	11 (100.0)	0 (0)	0 (0)	0 (0)
2	Don't indicate ovarian removal during hysterectomy for premenopausal women without risk of ovarian cancer.	43	10 (90.9)	1 (9.1)	0 (0)	0 (0)
3	Don't prescribe broad-spectrum antibiotics for treatment of uncomplicated acute cystitis.	43	10 (90.9)	1 (9.1)	0 (0)	0 (0)
4	Don't request preventive examinations for colpitis diagnosis.	41	10 (90.9)	0 (0)	0 (0)	1 (9.1)
5	Don't request unnecessary exams during low-risk prenatal care such as kidney and liver function tests.	41	8 (72.7)	3 (27.3)	0 (0)	0 (0)
6	Don't request more than three prenatal ultrasounds in low-risk gestation without complications.	39	6 (54.5)	5 (45.5)	0 (0)	0 (0)
7	Do not perform colposcopy without prior oncotic cytology in cervical cancer screening.	39	6 (54.5)	5 (45.5)	0 (0)	0 (0)
8	Don't treat asymptomatic bacteriuria in non-pregnant women.	39	8 (72.7)	1 (9.1)	2 (18.2)	0 (0)
9	Don't routinely recommend infectious diseases serologies for preoperative evaluation of elective surgical procedures.	38	8 (72.7)	1 (9.1)	1 (9.1)	1 (9.1)
10	Don't routinely recommend annual transvaginal ultrasound for asymptomatic women at reproductive age.	37	7 (63.6)	1 (9.1)	3 (27.3)	0 (0)
11	Don't recommend treatment in the early stage of low-grade squamous intraepithelial lesion.	36	5 (45.5)	4 (36.4)	2 (18.2)	0 (0)
12	Avoid systematically indicating surgery for uterine fibroids without first evaluating the possibility of drug treatment.	35	6 (54.5)	2 (18.2)	2 (18.2)	1 (9.1)

Table 1. Frequencies of the 16 recommendations suggested by 11 specialists of internship in Gynecology and Obstetrics from a medical school, Salvador, Bahia, 2018 (conclusion)

Nº	Items	Total score	Strongly agree N (%)	Agree moderately N (%)	Disagree moderately N (%)	Strongly disagree N (%)
13	Avoid indicating and maintaining the use of magnesium sulfate heptahydrate without adequate clinical monitoring.	34	6 (54.5)	1 (9.1)	3 (27.3)	1 (9.1)
14	Avoid indicating beta-mimetic drugs for stopping preterm delivery when adequate infusion pump and monitoring are not available	33	4 (36.4)	4 (36.4)	2 (18.2)	1 (9.1)
15	Don't systematically request ultrasound evaluation for screening for breast disorders.	32	3 (27.3)	5 (45.5)	2 (18.2)	1 (9.1)
16	Don't request laboratory tests for infectious screening, without established criteria, during prenatal care.	30	4 (36.4)	3 (27.3)	1 (18.2)	3 (27.3)

Source: the authors (2024).

We carried out educational activities with all participants, students, and teachers. We presented the Choosing Wisely campaign, outlining its history, objectives, and theoretical basis, using audiovisual resources and videos. We conducted two workshops, discussing the obtained recommendations in an interactive way, applying CW methodology. The undergraduate medical students carried out an evaluation of the workshop. The majority of students have positively evaluated the CW campaign content (excellent/very good, 95.9%) and quality of discussions (excellent/very good, 93.9%).

We used clinical cases and two GO recommendations in theoretical evaluation at the end of the internship period. Percentages of successes or failures are described in table 2.

Table 2. Descriptive evaluation of two recommendations in 98 internship students of Gynecology and Obstetrics, Salvador, Bahia, 2018

Recommendation in Gynecology and Obstetrics	Successes N (%)	Partial / Total Failures N (%)
Don't request preventive examinations for colpitis diagnosis.	88 (89.8)	10 (10.2)
Don't indicate ovarian removal during hysterectomy for premenopausal women without risk of ovarian cancer.	96 (98.0)	2 (2.0)

Source: the authors (2024).

We compared two groups, using OSCE evaluation. A group of students who participated in the CW campaign (98 students) and another group that did not participate in CW educational interventions (Table 3). The level of success in the OSCE evaluation was higher in the exposed group when compared to the non-exposed group (p=0.001).

Table 3. Frequency of answers in OSCE* evaluation according to students' participation in the Choosing Wisely campaign in the medical internship in Gynecology and Obstetrics, Salvador, Bahia, 2018

Recommendation in Gynecology and Obstetrics	Not in CW Campaign (N=110)		In CW Campaign (N=98)		P***
	Success N (%)	Partial / Total Failures N (%)	Success N (%)	Partial / Total Failures N (%)	
Reflection on the indication of mammography for a 40-year-old female patient, asymptomatic, with normal physical examination and no family history of breast cancer.	77 (70.0)	33 (30.0)	94 (95.9)	4 (4.1)	0,000

n: medical students

*OSCE: Objective Structured Clinical Examination

**Qui-square test

Source: the authors (2024).

4. Discussion

The Choosing Wisely campaign aimed to adopt a cost-conscious attitude, improving patient health care and avoiding overuse and waste behaviors.¹² We presented a list of five main evidenced-based recommendations, including examinations and conducts, which doctors should avoid in gynecology and obstetrics.

The first recommendation "Don't routinely order hormone levels for menopause diagnose" is consistent with the Quality Standards on Menopause based on NICE guidance.¹³ Menopause is a woman's physiological process, which marks the transition between reproductive and non-reproductive phases. Menopause diagnosis is eminently clinical, and confirmatory laboratory tests are unnecessary.¹³ The World Health Organization (WHO) defines natural menopause as a natural and biological life phase, and not a pathological process.¹⁴ The climacteric comprises a transition phase characterized by hormonal fluctuations, menstrual irregularities until amenorrhoea, and neurovegetative or vasomotor symptoms.^{13,14}

Blood concentration of follicle-stimulating hormone (FSH) varies significantly in perimenopause. Therefore its isolated dosage is not reliable for diagnosis.^{13,14} The unnecessary request for FSH also results in delayed diagnosis, and increased patient anxiety in dealing with menopause symptoms. Therefore, FSH dosage is unnecessary in healthy women over 45 years with climacteric symptoms.¹⁵ On the other hand, requesting an FSH test should be considered in the following situations: in women aged 40 and 45 years with menopausal symptoms and changes in their menstrual cycle, and in women aged under 40 years in whom early menopause is suspected.^{14,15}

The second recommendation "Don't indicate ovarian removal during hysterectomy for premenopausal women without risk of ovarian cancer" is justified by the evidence that bilateral oophorectomy may have a negative impact on long-term due to increased cardiovascular disease risk.¹⁶ Prophylactic oophorectomy is beneficial only for women at high risk of ovarian or breast cancer, as for women with BRCA 1 and 2 mutations, significantly reducing the risk of ovarian carcinoma, and decreasing the need for further gynecological surgeries.^{16,17}

Bilateral oophorectomy in premenopausal women induces early menopause, decreasing estrogen and androgen levels, and increasing cardiovascular risk, neurological diseases, and osteoporosis.¹⁶ A systematic review¹⁷ analyzed randomized controlled trials comparing hysterectomy with and without removal of ovaries in premenopausal women. The study showed that ovarian preservation does not increase mortality and that scientific evidence does not support a high number of prophylactic bilateral oophorectomy in premenopausal women without BRCA mutation. Bilateral oophorectomy has a negative effect on women's health undergoing this procedure without adequate indication, especially in those younger than 45 years.^{16,17}

Uncomplicated urinary tract infections (UTI) are usually self-limiting and rarely progress to severe disease, justifying the third recommendation: don't prescribe broad-spectrum antibiotics for treatment of uncomplicated acute cystitis. However, UTIs are responsible for 25% of antibiotic prescriptions in outpatient clinics.¹⁸ *Escherichia coli* is the main causative agent of uncomplicated acute cystitis, accounting for 75 to 95% of cases in women.¹⁹ In Brazil, in 2014, a study analyzed 11,943 aerobic urine cultures, evidencing that *Escherichia coli* was the most frequent microbe isolated in urine culture (70.2%) and with a high sensitivity rate (88.3%) for most analyzed antibiotics.²⁰ Recommended empirical treatment of acute cystitis should initially opt for narrow-spectrum antibiotics with coverage for this agent.^{18,19}

Currently, broad-spectrum antibiotics prescriptions are increasing, with a consequent decrease in bacterial susceptibility.²⁰ Broad-spectrum antibiotics are also responsible for the greater occurrence of side effects when compared to narrow-spectrum antibiotics.²¹ The use of broad-spectrum antibiotics as the first choice in the treatment of uncomplicated acute cystitis is not recommended.^{18,19}

Pap staining is universally used in the screening test for cervical cancer²² which justifies the fourth

recommendation "Don't request preventive examinations for colpitis diagnosis". Although, a Pap-stained smear may suggest genital tract infection, the cytological changes are often not diagnostic. Despite this, colpocytology has been used for cervicovaginal infections diagnosis.²³ *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, *Candida albicans*, *Mycoplasma*, and *Gardnerella vaginalis* are causes of colpitis. Previous studies have shown low positivity for these microorganisms in colpocytology compared to fresh examination, which is the recommendation of the Brazilian Ministry of Health, and specific culture.^{23,24}

In 2012, a study reported the analyses of 12,014 oncotoc colpocytology exams; 68.4% of them were diagnosed as inflammatory cytology. However, the etiologic agent was identified in only 10.3% of the cytologies, showing that this is not a specific examination for the diagnosis of cervicovaginal infections. The study also concluded that oncotoc colpocytology is not a good method for the detection of agents such as *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. More sensitive and specific methodologies should be used in diagnoses of cervicovaginal infectious microorganisms.²⁵ As colpocytology does not present good sensitivity and specificity for cervicovaginal infections, it should not be routinely requested for the screening of colpitis.^{24,25}

The fifth recommendation "Don't request unnecessary exams during low-risk prenatal care such as kidney and liver function tests" was also scientifically based. O Ministério da Saúde do Brasil (The Brazilian Ministry of Health) protocol for women's health care recommends the following laboratory tests in low-risk prenatal care: hemoglobin and hematocrit; hemoglobin electrophoresis; blood type and Rh factor; glycemia; urine type I; uroculture; rapid test for syphilis or VDRL (Venereal Disease Research Laboratory); rapid test or serology for human immunodeficiency virus (HIV); serology for hepatitis B, toxoplasmosis (IgG and IgM) and parasitological stool.²⁶

In pregnancy, there are physiological changes in several organs, including the kidneys and liver. There is an increase in glomerular plasma flow and acceleration of glomerular filtration rate. A physiological increase in alkaline phosphatase and a decrease in albumin levels may occur.²⁷ Understanding maternal organism changes during pregnancy is important to recognize and differentiate physiologic processes from abnormal changes. The unnecessary request of laboratory tests for renal and hepatic evaluations may contribute to incorrect diagnoses.^{26,28} These tests should be requested in case of comorbidities such as hypertension, cardiovascular, renal, and hepatic diseases.²⁹ Many tests are requested without effective follow-up of results, causing an additional cost to the health care system.³⁰

Educational actions resulted in critical thinking about the clinical value of a particular test or treatment, considering risks, benefits, and a cost-conscious attitude towards healthcare. Active methodology has stimulated reflection on medical practice based on scientific evidence, health care value, and less risk of causing harm to patients.

Medical students showed their positive learning with the CW initiative in theoretical evaluation at the end of the stage. The campaign included clinical cases to reflect situations of medical practice, stimulating cost-conscious and high value in health care. OSCE evaluation showed a significant knowledge improvement among students who had been submitted to the CW campaign when compared with those who have not participated in the CW initiative.

Resource management and wise decision-making are increasingly recognized as an essential competency for physicians; however, the implementation of these themes in medical schools is still very little expressive.³¹ In Canada, only in recent years, the CW initiative started to be implemented at medical schools with the goal of challenging students to think critically about the appropriate use of tests and treatment, value-based health care, and patient safety. Medical undergraduate students from 17 Canadian medical schools were involved in building a list of six unnecessary medical practice situations.³²

Medical education in a clinical environment with more intense use of health care may result in overuse. Physicians' behaviors are strongly influenced by training-period practices not only in undergraduate period, but also during medical residence.^{32,33} Not only undergraduate medical schools but also residency programs should implement their curricula to teach value and cost in health care.³⁴ Medical schools should incentivize the use of active learning methods such as clinical case discussion and OSCE, adopting cost-conscious practice.³¹⁻³³

5. Conclusions

The implementation of the Choosing Wisely campaign in gynecology and obstetrics, during medical undergraduate period, resulted in critical thinking, involving teachers and students. There was a mobilization around the theme during the CW campaign implementation, leading to more cost-conscious attitudes during the internship and allowing the addition of learning as observed in evaluation results.

Medical education studies in this field in undergraduate schools may contribute to professional training, adopting evidence-based decisions, maximizing benefits, and minimizing harm to patients. To the best of our knowledge, this is the first study in Brazil that has built a list of recommendations in gynecology and obstetrics and may contribute to a more cost-conscious medical practice.

Authors' contributions

We declare that all co-authors included in this paper fulfill the criteria of authorship. Mendonça DR has written the paper, worked on acquisition, analysis, and interpretation of data; Brito MB, Aguiar CVN, Menezes MS, and Lins-Kusterer L have worked on analysis and interpretation of data and revised the paper critically; Scavuzzi ACF has worked on acquisition of data and critically reviewed the manuscript. All co-authors have critically reviewed it and approved its last version for publication and have agreed to be accountable for all aspects of the work, ensuring that questions relating to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflicts of interest

No financial, legal, or political conflicts involving third parties (government, companies, and private foundations, etc.) were declared for any aspect of the submitted work (including, but not limited to, grants and funding, participation in an advisory board, study design, manuscript preparation, statistical analysis etc.).

Indexers

The International Journal of Education and Health is indexed by [DOAJ](#) and [EBSCO](#).



References

- Greenberg J, Green JB. Over-testing: why more is not better. *Am J Med.* 2014;127:362-363. <https://doi.org/10.1016/j.amjmed.2013.10.024>
- Papanicolaos I, Woskie LR, Jha AK. Health Care Spending in the United States and Other High-Income Countries. *JAMA.* 2018;319(10):1024-1039. <https://doi.org/10.1001/jama.2018.1150>
- Kliff S. We spend \$750 billion on unnecessary health care. Two charts explain why [Internet]. *The Washington Post.* 2012 sept. 7. Available from: <https://www.washingtonpost.com/news/wnk/wp/2012/09/07/we-spend-750-billion-on-unnecessary-health-care-two-charts-explain-why/>
- Lara NC, Campino A, Carneiro LA. Evidências de práticas fraudulentas em sistemas de saúde internacionais e no Brasil. Instituto de Estudos de Saúde Suplementar; 2017. Available from: <https://www.iess.org.br/biblioteca/tds-e-estudos/textos-para-discussao/td-62-evidencias-de-praticas-fraudulentas-em>
- Young PL, Olsen LA. *The Healthcare Imperative: Lowering Costs and Improving Outcomes: Workshop Series Summary.* Washington: The national academic press; 2010. Available from: <http://www.nap.edu/catalog/12750.html>
- Cassel CK, Guest JA. Choosing Wisely. *JAMA.* 2012;307(17):1801-2. <https://doi.org/10.1001/jama.2012.476>
- The American College of Obstetricians and Gynecologists. *Choosing Wisely.* 2013; Available from: <https://www.acog.org/practice-management/patient-safety-and-quality/partnerships/choosing-wisely>
- Proqualis. *Aprimorando as Práticas de Saúde* [Internet]. Available from: <https://proqualis.net/choosing-wisely-brasil>
- Linstone HA, Turoff M. *The Delphi Method - Techniques and Applications.* 2002. Available from: https://www.foresight.pl/assets/downloads/publications/Turoff_Linstone.pdf
- Bermudes WL, Santana BT, Braga JHO, Souza PH. Tipos de escalas utilizadas em pesquisas e suas aplicações. *Vértices.* 2016;18(2):7-20. Available from: <https://editoraessentia.iff.edu.br/index.php/vertices/article/view/1809-2667.v18n216-01>
- Phillips AC, Lewis LK, McEvoy MP, Galipeau J, Glasziou P, Moher D, Tilson JK, Williams MT. Development and validation of the guideline for reporting evidence-based practice educational interventions and teaching (GREET). *BMC Med Educ.* 2016;16(1):237. <https://doi.org/10.1186/s12909-016-0759-1>
- Levinson W, Kallewaard M, Bhatia RS, Wolfson D, Shortt S, Kerr E a. "Choosing Wisely": a growing international campaign. *BMJ Qual Saf.* 2015;24(2):167-174. <https://doi.org/10.1136/bmjqs-2014-003821>
- Davies M, Sarri G, Lumsden MA. *Diagnosis of the menopause: National Institute for Health and Care Excellence (NICE). Menopause Quality Standard Contents Contents.* *Annals of Clinical Biochemistry.* 2017, 54(5):516-518. <https://doi.org/10.1001/jamainternmed.2016.2761>
- Ministério da Saúde (Brazil). *Manual de atenção à mulher no climatério/menopausa.* Brasília: Ministério da Saúde; 2008. Available from: http://bvsmms.saude.gov.br/bvs/publicacoes/manual_atencao_mulher_climaterio.pdf
- Lumsden MA. The NICE Guideline – Menopause: diagnosis and management. *Climacteric.* 2016;19(5):426-429. <https://doi.org/10.1080/13697137.2016.1222483>
- Plusquin C, Fastrez M, Vandromme J, Rozenberg, S. Determinants of the decision to perform prophylactic oophorectomy in association with a hysterectomy for a benign condition. *Maturitas.* 2012;73(2):164-166. <https://doi.org/10.1016/j.maturitas.2012.06.014>
- Orozco LJ, Tristan M, Vreugdenhil MMT, Salazar A. Hysterectomy versus hysterectomy plus oophorectomy for premenopausal women. *Cochrane Database Syst Rev.* 2014;2014(7). <https://doi.org/10.1002/14651858.CD005638.pub3>
- Marques AR, Cunha, AF. Infecções urinárias não complicadas na mulher: esperar ou tratar? *Rev Port Med Geral Fam.* 2016;32(4):280-2. Available from: <https://rpmgf.pt/ojs/index.php/rpmgf/article/view/11830>
- Hooton TM. Uncomplicated Urinary Tract Infection. *New Engl J Med.* 2012;366(11):1028-37. <https://doi.org/10.1056/NEJMcp1104429>

20. Miranda EJP, Oliveira GSS, Roque FL, Santos SR, Olmos RD, Lotufo PA. Susceptibility To Antibiotics in Urinary Tract Infections in a Secondary Care Setting From 2005-2006 and 2010-2011, in São Paulo, Brazil: Data From 11,943 Urine Cultures. *Rev Inst Med Trop Sao Paulo*. 2014;56(4):313-324. <https://doi.org/10.1590/S0036-46652014000400009>
21. Meireles-Flores AL, Walker JN, Caparon M, Hultgren. Urinary tract infections: epidemiology, mechanisms of infection and treatment options. *Nat Rev Microbiol*. 2015;13(5):269-84. <https://doi.org/10.1038/nrmicro3432>
22. Pinho AA, França-Junior I. Cervical cancer prevention: a theoretical framework to analyze Papanicolaou test access and use. *Rev bras saúde Matern infant*. 2003;3(1):95-112. <https://doi.org/10.1590/S1519-38292003000100012>
23. Storti-Filho A, Svidizinski TIE, Souza RJDS, De Mello ICJ, Souza PDC, Consolaro MEL. Oncotic colpocytology stained with Harris-Shorr in the observation of vaginal microorganisms. *Diagnostic Cytopathology*. 2008;36(6):358-62. <https://doi.org/10.1002/dc.20820>
24. McMillan A. The detection of genital tract infection by Papanicolaou-stained tests. *Cytopathology*. 2006;17:317-22. <https://doi.org/10.1111/j.1365-2303.2006.00411.x>
25. Chiuchetta GIR, Ruggeri LR, Piva S, Consolaro MEL. Estudo das inflamações e infecções cérvico-vaginais diagnosticadas pela citologia. *Arq Ciência Saúde Unipar*. 2002;6(2):123-28. Available from: <https://pesquisa.bvsalud.org/portal/resource/pt/lil-350969>
26. Ministério da Saúde (Brazil). Protocolos Da Atenção Básica - Saúde Das Mulheres. Brasília: Instituto Sírio-Libanês de Ensino e Pesquisa; 2016. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/protocolos_atencao_basica_saude_mulheres.pdf
27. Peixoto S, Duarte G, Madi JM. Manual de Assistência Pré-Natal. 2a edição. São Paulo: Federação Brasileira das Associações de Ginecologia e Obstetrícia (FEBRASGO); 2014.
28. Gohel MG, Joshi AG, Anand JS, Makadia JS, Kamariya CP. Evaluation of changes in liver function test in first, second and third trimester of normal pregnancy. *Int J Reprod Contracept Obs Gynecol*. 2013;22(4):616-20. <https://doi.org/10.5455/2320-1770.ijrcog20131225>
29. Ministério da Saúde (Brazil). Caderno de Atenção Ao Pré-Natal de Baixo Risco. Brasília: Secretaria de Atenção à Saúde; Departamento de Atenção Básica; 2012. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/cadernos_atencao_basica_32_prenatal.pdf
30. Domingues RMSM, Hartz ZMA, Dias MAB, Leal MC. Adequacy of prenatal care in the National Health System in the city of Rio de Janeiro, Brazil. *Cad Saúde Pública*. 2012; 28(3):425-37. <https://doi.org/10.1590/S0102-311X2012000300003>
31. Muntyanu A, Jebanesan D, Kuling P. Choosing Wisely: Resource Stewardship Education in Canadian Medical Schools. UOJM ePub; 2017. Available from: https://www.researchgate.net/publication/313454229_Choosing_Wisely_Resource_Stewardship_Education_in_Canadian_Medical_Schools/fulltext/589b20dfaca2721f0db5eae1/Choosing-Wisely-Resource-Stewardship-Education-in-Canadian-Medical-Schools.pdf
32. Lakhani A, Lass E, Silverstein WK, Born KB, Levinson W, Wong BM. Choosing wisely for medical education: Six things medical students and trainees should question. *Acad Med*. 2016;(91):1374-78. <https://doi.org/10.1097/ACM.0000000000001325>
33. Cardone F, Cheung D, Han A, Born KB, Alexander L, Levinson W, et al. Choosing Wisely Canada Students and Trainees Advocating for Resource Stewardship (STARS) campaign: a descriptive evaluation. *CMAJ OPEN*. 2017;5(4):864-70. <https://doi.org/10.9778/cmajo.20170090>
34. Post J, Reed D, Halvorsen AJ, Huddleston J, McDonald F. Teaching High-value, Cost-conscious Care: Improving Residents' Knowledge and Attitudes. *Alliance for Academic Internal Medicine*. 2013;126(9):838-42. <https://doi.org/10.1016/j.amjmed.2013.05.015>