VALUE-BASED RADIOLOGY

A MODERN PRACTICAL APPROACH IN THE ERA OF VALUE-BASED HEALTHCARE

DISCLOSURES

Carlos Francisco Silva, MD

No financial disclosures.
Opinions my own.

CENTRO HOSPITALAR DE SETÚBAL, E.P.E.

THANKS FOR THE INVITATION

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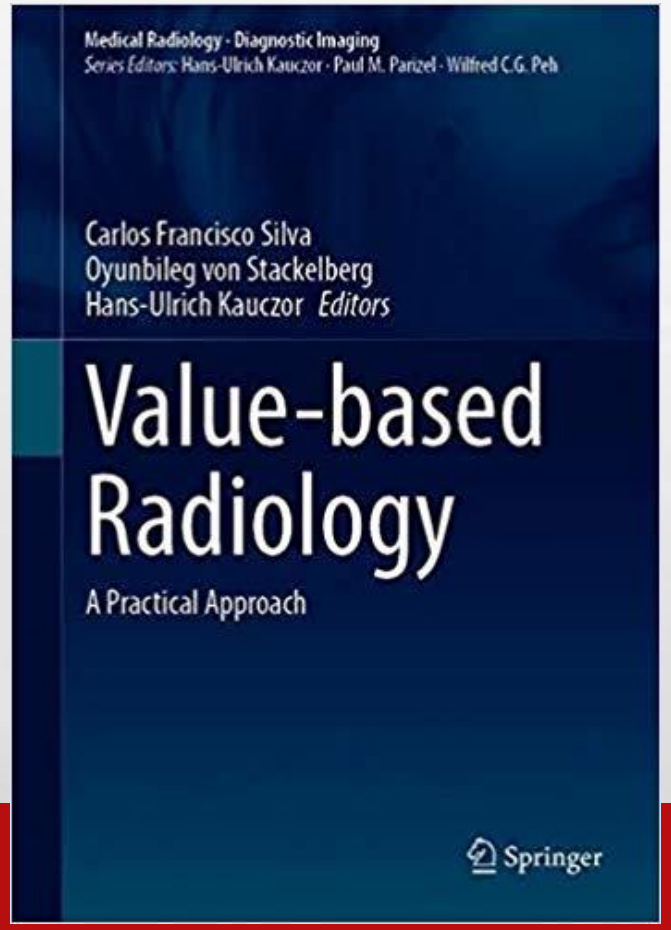


CONTENT

to discuss what is value in Radiology

the problem of nearly 30% of waste in imaging exams

Choosing Wisely campaign and Appropriateness Criteria in Radiology

practical examples of valuable reports in Radiology

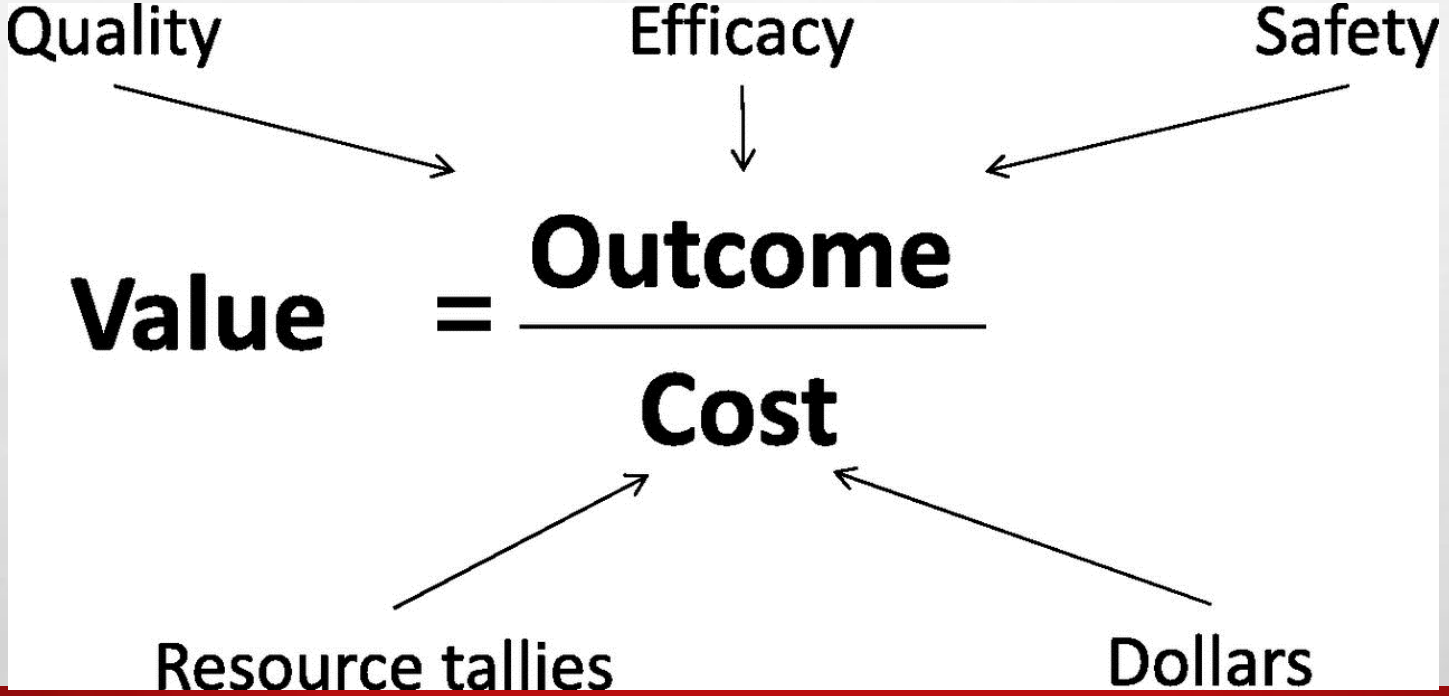
to introduce the Radiology Consult

WHAT IS VALUE IN RADIOLOGY

$$\text{VALUE} = \frac{\text{OUTCOMES}}{\text{COST}}$$

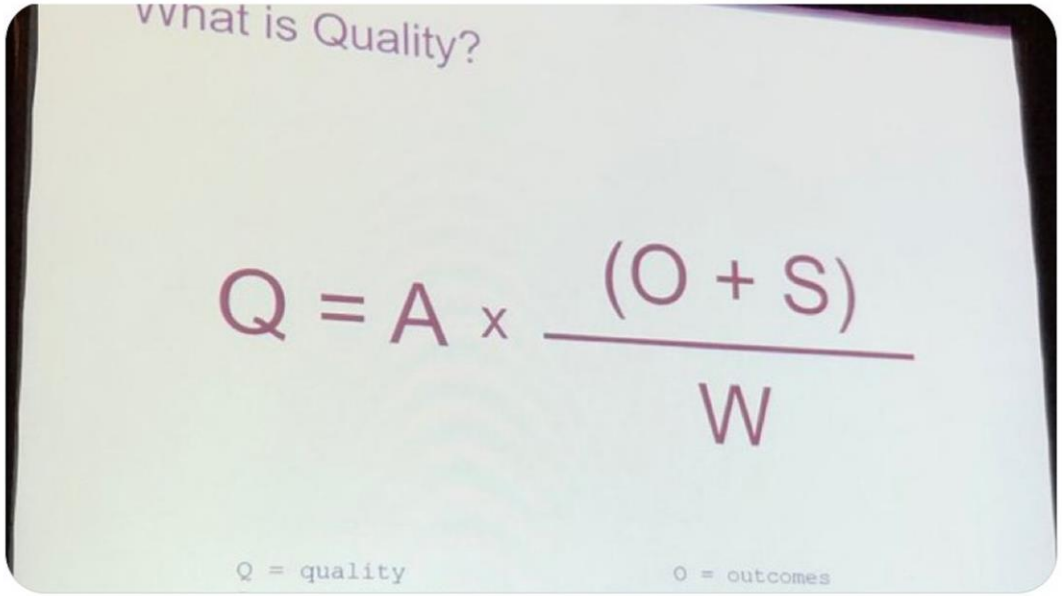
Michael E. Porter, Ph.D. What Is Value in Health Care? N Engl J Med 2010; 363:2477-2481

WHAT IS VALUE IN RADIOLOGY



WHAT IS VALUE IN RADIOLOGY

Outcomes matter and if you did a study that was **not appropriate** then value=zero



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30% OF WASTE IN IMAGING EXAMS

Beyond High Prices: Five Reasons to Continue Addressing Overuse

April 10, 2018

abroad. In fact, the 20 countries now involved in *Choosing Wisely* have about the same amount of overuse—30 percent of the tests and procedures are unnecessary. This was suggested by a recent study in Canada. If

WASTE REDUCTION / CHOOSING WISELY

Choosing Wisely Portugal – Escolhas Criteriosas em Saúde
Choosing Wisely Portugal – Wise Health Decisions

Acta Med Port 2018 Oct;31(10):521-523 • https://doi.org/10.20344/amp.11138

EDITORIAL

Cartas ao Editor, Acta Med Port 2018 Nov;31(11):698-701

Letter to the Editor: Choosing Wisely Portugal

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WASTE REDUCTION / CHOOSING WISELY

ARTIGO ORIGINAL

Volume or Value? The Role of the Radiologist in Managing Radiological Exams

Carlos Francisco SILVA✉[1], Teresa GUERRA[1]

Acta Med Port 2017 Sep;30(9):628-632 • https://doi.org/10.20344/amp.8253

ABSTRACT

Introduction: The purpose of this study was to understand the reasons and quantify the number of ultrasounds and computed tomographies that are potentially wasted in the hospital emergency in our institution, and the importance that the radiologist can have in the management and screening of these exams.

Material and Methods: It was decided that urgent tests that were pending for more than seven days would be the object of analysis as to why they were not performed, consulting the electronic medical records. Six causes were used to cancel the requests: 'Changing the patient's status', 'Patient's withdrawal, refusal or abandonment', 'Patient's death'; 'No criteria or contraindicated', 'Lack of human resources' and 'Mistaken request'.

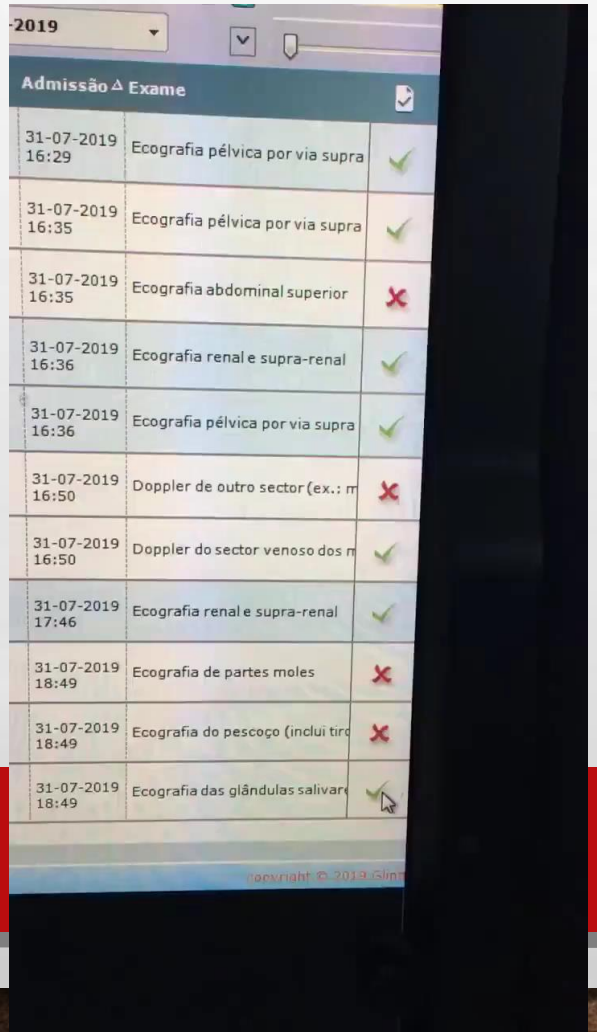
Results: In the year 2015 we obtained 1211 canceled exams, since they were pending more than a week ago. The first four causes totaled 602 exams (sum of 283, 94, 41 and 184). The last two, 609 (sum of 29 and 580).

Discussion: It was verified that the 602 exams corresponding to the sum of the first four causes reflected a potential waste in clinical tests since they were not determinant in the approach of the Emergency episode nor on the final destiny of the patient. Under the tip of the iceberg may exist further examinations and patients who have not escaped inadequate or unjustified examinations.

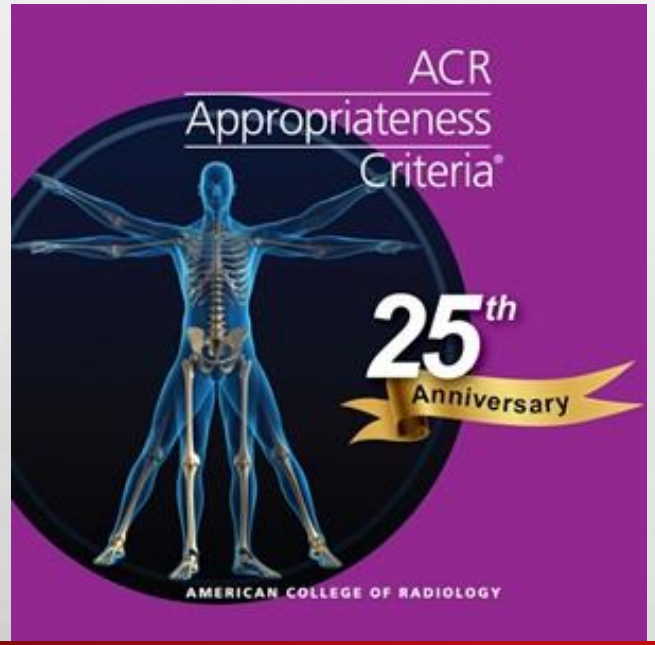
Conclusion: The radiologist can better manage the required radiological examinations, effectively screening within a multidisciplinary team environment, promoting the development and supporting the respect of guidelines, and potentially reducing requests through opinions or second opinions.

Keywords: Diagnostic Imaging; Emergency Service, Hospital; Radiology; Unnecessary Procedures

CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY



CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY



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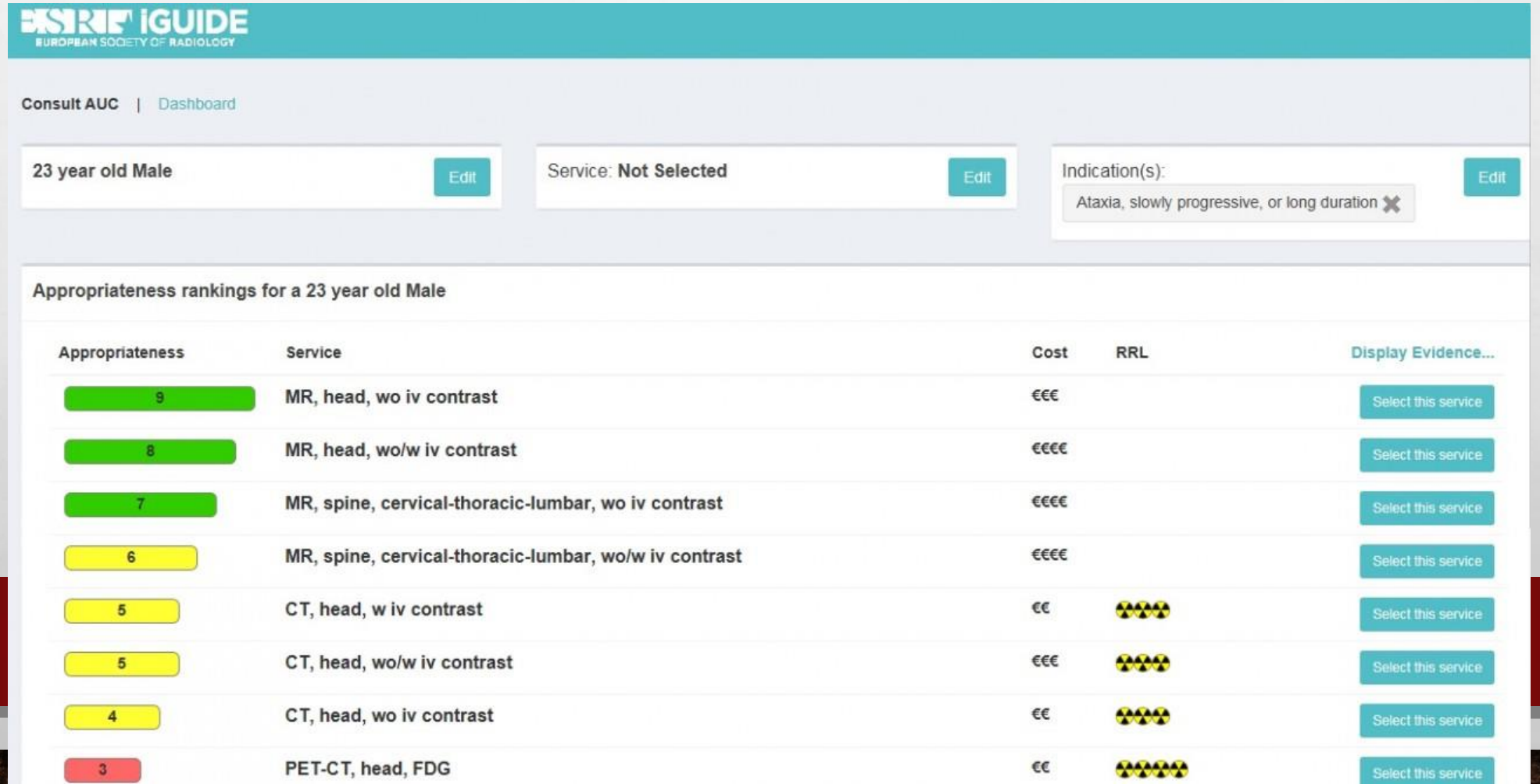
CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY



CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY

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Provide Feedback ESR

Microsoft Word - Acute Respiratory Illness in Immunocompetent Patients 1 / 7

Date of origin: 1995
Last review date: 2013

American College of Radiology
ACR Appropriateness Criteria®

Clinical Condition: Acute Respiratory Illness in Immunocompetent Patients

Variant 1: Older than age 40.

Radiologic Procedure	Rating	Comments	RRL*
X-ray chest	8		☢
CT chest without IV contrast	4		☢☢☢
CT chest with IV contrast	3		☢☢☢
CT chest without and with IV contrast	1		☢☢☢
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level

Variant 2: Dementia, any age.

Radiologic Procedure	Rating	Comments	RRL*
X-ray chest	8		☢
CT chest without IV contrast	6	In patients without reliable follow-up or with a likelihood of morbidity if disease is not detected initially, a CT may be required in the setting of a negative chest x-ray.	☢☢☢
CT chest with IV contrast	3		☢☢☢
CT chest without and with IV contrast	1		☢☢☢
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level

Variant 3: Younger than age 40, negative physical examination, and no other signs, symptoms, or risk factors.

Radiologic Procedure	Rating	Comments	RRL*
X-ray chest	4		☢
CT chest without IV contrast	1		☢☢☢
CT chest with IV contrast	1		☢☢☢
CT chest without and with IV contrast	1		☢☢☢
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level

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CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY

VA Clinical Decision Support Cuts Unnecessary Lab Tests by 11%

A clinical decision support tool aimed at reducing unnecessary lab utilization produced positive results within the Veterans Health Administration.

Is it Enough?

...idence-based Clinical Decision Support on the Use and Yield of ...monary Angiographic Imaging in Hospitalized Patients

Author List

Additional Information

https://doi.org/10.1148/radiol.15141208

Conclusion

Implementation of evidence-based CDS for inpatients was associated with a 12.3% immediate and sustained decrease in use of CT pulmonary angiographic examinations in the evaluation of inpatients for acute PE.

CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY

American College of Radiology
ACR Appropriateness Criteria®
Suspected Pulmonary Embolism

Variant 1: Suspected pulmonary embolism. Intermedi… …a negative D-dime… pretest probability.

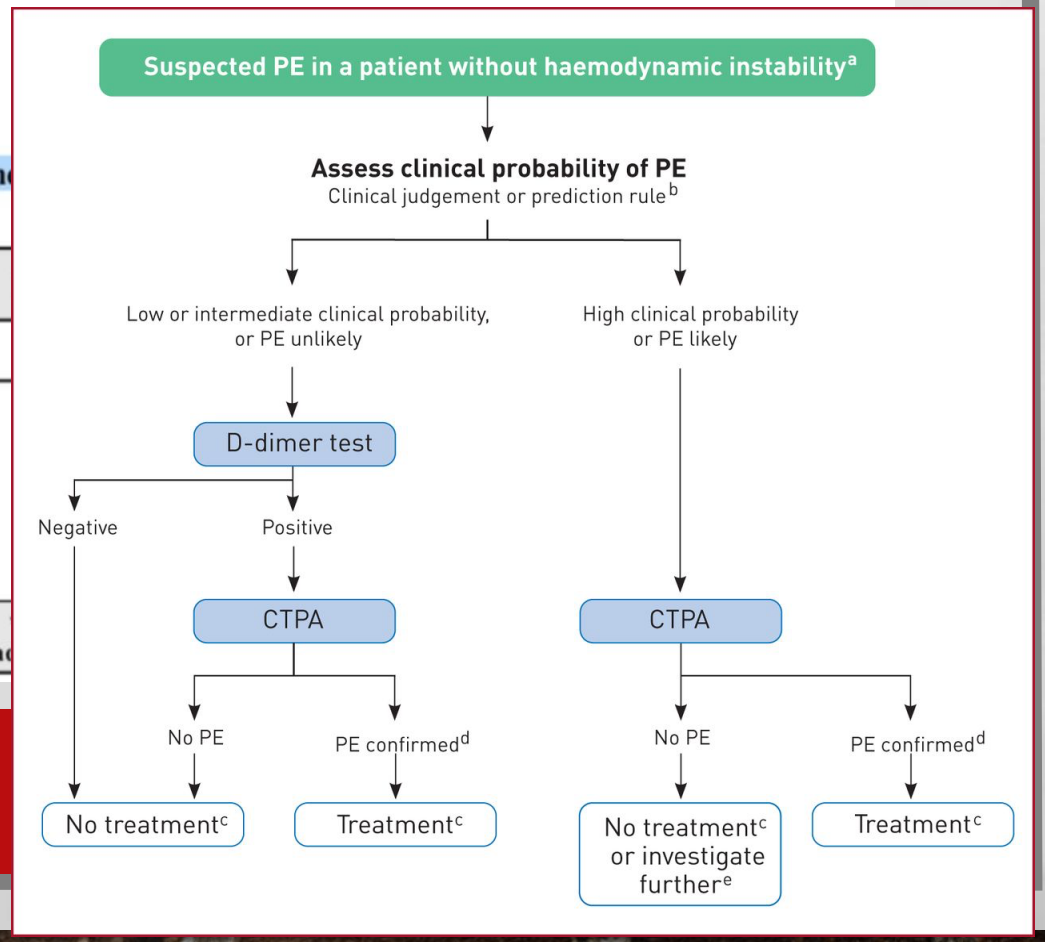
Radiologic Procedure	…tin…	…nments
X-ray chest		
CTA chest with IV…		…is procedure should be optimized for pulmonary arterial enhancement. This procedure may be appropriate but there was disagreement among panel members on the appropriateness rating as defined by the panel's median rating.

Rating Scale: 1,2,3 Usually …propriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

Rad…

Outdated

2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism developed in collaboration with the European Respiratory Society (ERS)



CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY

Thorax-Abdomen-Pelvic CT scan request info:
Cutaneous Melanoma. Initial Staging.

→ **CT scan Protocol?**

↳ **Check EHR:**
Melanoma stage pT1a

Cutaneous melanoma: ESMO Clinical Pra… …es for diagnosis, treatment and follow-up† FREE

O Michielin, A van Akkooi, P Ascierto, R Dummer, U K… E… Gu… e… m… Author Notes

Annals of Oncology, mdz411, https://doi.org/10… /md…

Published: 30 September 201…

STAGING AN… R… A… ES… N…

In low–risk mel… …a), no additional investigations are necessary.

Missing

CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY

Other frequent mistakes:

- forgeting to compare to previous CT/MRI/US studies
- missing information on previous reports
- good info request but wrong patient
- missing/[illegible]us lab data

CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY

Health Aff (Millwood). 2017 Nov;36(11):2005-2011. doi: 10.1377/hlthaff.2017.0945. Epub 2017 Oct 24.

Choosing Wisely Campaign: Valuable For Providers Who Knew About It, But Awareness Remained Constant, 2014-17.

Colla CH[1], Mainor AJ[2].

Leading reasons why physicians, even though being totally aware of the problem, continued to order low value tests and procedures were:

- malpractice concerns (87%);
- desire to reduce uncertainty (84%);
- "just to be safe" (78%);
- desire to keep patients happy and patients´ insistence (>70%).

CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY

CHOOSING WISELY / APPROPRIATENESS CRITERIA IN RADIOLOGY

Audit 11

1) **Audit Title**
What percentage of studies involving ionising radiation are justified in advance of being performed?

2) **Standard against which the audit topic is to be compared**
European Council Directive

3) **Source of standard**
Council Directive 2013/59/Euratom, Article 55

4) **Type of Audit – Clinical, regulatory**
Compulsory. Legal requirement

5) **Target / compliance percentage to be achieved**
100 %

Esperanto
ESR Guide to Clinical Audit in Radiology and the ESR Clinical Audit Tool

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Procedure Information

Technique:
Helical images were obtained through the abdomen and pelvis following the protocol administration of nonionic intravenous contrast material and positive oral contrast material. No complications were reported.

Because of the provided clinical history late arterial ("pancreatic") phase images were obtained in addition to the standard portal venous phase images.

Clinical Information

Indication: None.

Comparison

None.

Findings

Liver: Normal.

Gallbladder and Bile Ducts: Normal.

Kidneys: Normal.

Adrenals: Normal.

Spleen: Normal.

Pancreas: Normal.

Bowel and Stomach: The stomach and visualized loops of large and small bowel are unremarkable.

Appendix: Incidental note made of normal appearance to the appendix.

Pelvis: The prostate and seminal vesicles are unremarkable.

Mesentery/Peritoneum: Normal.

Nodes: Scattered small nodes but no adenopathy.

Vasculature: Scattered atherosclerotic vasculature changes.

Bone Windows: Degenerative changes but no aggressive osseous abnormalities.

Fluid: No ascites and no abnormal focal fluid collections.

Lung windows through the lung bases: Normal.

Soft tissues: Normal.

Other findings: None.

Impression

Normal.

VALUABLE REPORTS IN RADIOLOGY

Doppler do setor venoso do membro inferior

RELATÓRIO:

Confirma-se **trombose venosa profunda (TVP)** a nível poplíteo.

Dada a referência a queixas respiratórias/torácicas neste jovem, num atual contexto de tromboembolismo venoso documentado (TVP), considere não realizar AngioTC Pulmonar para confirmar tromboembolismo pulmonar, de acordo com melhores práticas do American College of Physicians [1].

(1) Raja AS, Greenberg JO, Qaseem A, Denberg TD, Fitterman N, Schuur JD; Clinical Guidelines Committee of the American College of Physicians. *Evaluation of Patients With Suspected Acute Pulmonary Embolism: Best Practice Advice From the Clinical Guidelines Committee of the American College of Physicians*. Ann Intern Med. 2015 Nov 3;163(9):701-11.

Table 2. Suggestions for Imaging in Patients With Suspected PE

Clinical Situation	Basis for Imaging Action (Reference)
Immediate CT	
Hemodynamically unstable, with suspected PE*	Risks of inaction outweigh risks of CT
High pretest probability of PE	Incidence of PE 19%–28% even with a D-dimer level <500 ng/mL (7, 74)
Defer CT until after D-dimer result	
Intermediate pretest probability	Low incidence of PE (<1.1%) if D-dimer level <500 ng/mL (41–43)
Low pretest probability and PERC > 0	
No CT or D-dimer test	
Low pretest probability and PERC = 0	Incidence of PE <1% (47)
Begin with lower-extremity venous ultrasonography	
Patients with symptoms of DVT and PE	Similar treatment will be pursued without exposing the patient to the risks of radiation or intravenous contrast

CT = computed tomography; DVT = deep venous thrombosis; PE = pulmonary embolism; PERC = Pulmonary Embolism Rule-Out Criteria.
* Hemodynamic instability may make transport for imaging problematic. Supportive measures or empirical anticoagulation until imaging can be obtained may be required.

O Médico

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VALUABLE REPORTS IN RADIOLOGY

TC DO ABDÓMEN + PÉLVIS

RELATÓRIO:

Comparativamente com a anterior TC de 11-11-2019 verifica-se uma ligeira redução do hematoma do músculo ilio-psosas, sobretudo nos maiores eixos do plano axial, atualmente com ~7x4.7cm.
Sem outras valorizáveis alterações na restante avaliação/cortes abrangidos.

Dose total de radiação no presente exame:
125.8 mGy ou ~**1.89 mSv** ou ~**189 dias** de radiação de fundo natural.
[p.e. 1 RX tórax: ~0.1mSv ou ~10 dias de radiação de fundo natural**]**.

Dose total de radiação em anteriores TCs:
11-11-2019: **537.2 mGy** ou ~**8 mSv** ou ~**2.4 anos** de radiação de fundo natural.
05-11-2019: **715.2 mGy** ou ~**10.7 mSv** ou ~**3.2 anos** de radiação de fundo natural.
10-10-2019: **3,0983 Gy** ou ~**46.5 mSv** ou ~**16.2 anos** de radiação de fundo natural.
10-10-2019: **820.3 mGy** ou ~**4.8 mSv** ou ~**1.6 anos** de radiação de fundo natural.
09-10-2019: **1,2736 Gy** ou ~**19.1 mSv** ou ~**6.7 anos** de radiação de fundo natural.
01-10-2019: **1,3226 Gy** ou ~**2.7 mSv** ou ~**0.9 anos** de radiação de fundo natural.
29-09-2019: **1,8409 Gy** ou ~**3.9 mSv** ou ~**1.3 anos** de radiação de fundo natural.
25-09-2019: **1,1857 Gy** ou ~**2.5 mSv** ou ~**0.8 anos** de radiação de fundo natural.

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RadioGraphics

Multimedia-enhanced Radiology Reports: Concept, Components, and Challenges

Published Online: Mar 12 2018 | https://doi.org/10.1148/rg.2017170047

Radiology Reports With Hyperlinks Improve Target Lesion Selection and Measurement Concordance in Cancer Trials

Laura B. Machado[1], Andrea B. Apolo[2], Seth M. Steinberg[3] and Les R. Folio[1]

American Journal of Roentgenology. 2017;208: W31-W37. 10.2214/AJR.16.16845

Radiologist Adoption of Interactive Multimedia Reporting Technology

Steven D. Beesley, MD[a], James T. Patrie, MS[b], Cree M. Gaskin, MD[a]

J Am Coll Radiol 2019;16:465-471.

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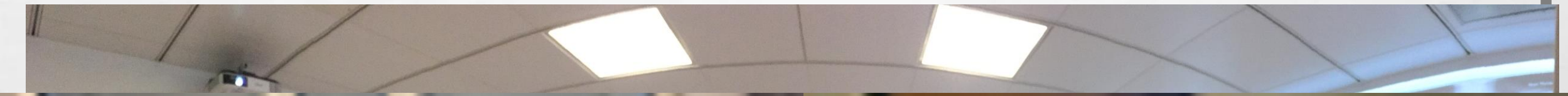

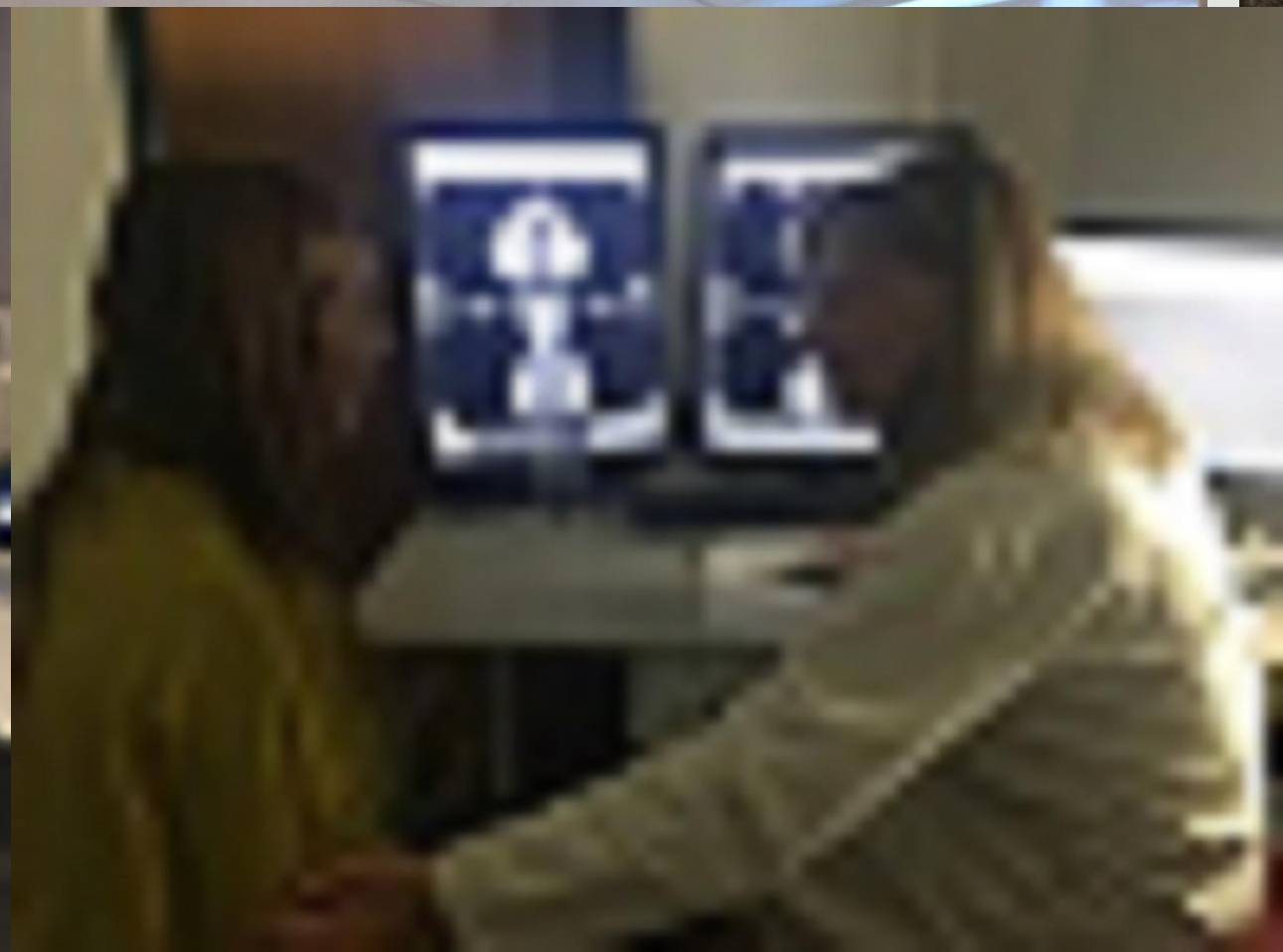

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Diário da República, 2.ª série — PARTE E

N.º 178 — 17 de setembro de 2019 — Pág. 103

ORDEM DOS MÉDICOS

Regulamento n.º 724/2019

Especialidade	Telerrastreio	Teleconsulta	Primeira consulta	Consulta de acompanhamento/subsequentes	Consulta final de tratamento	Consulta de *follow up*	Observações
Pneumologia.			30 Min.	20 Min.			Áreas como a Pneumologia Oncológica e a Patologia do Interstício apontam tempos de primeira consulta de 45 min. Também reconhecemos que em determinadas áreas pontualmente uma consulta subsequente se pode desenrolar em 15 Min.
Psiquiatria.			45 Min.	30 Min.			
Radiologia.			35 Min.	35 Min.			Ambiente Hospitalar: • Radiologia convencional (exame não contrastado) — 10min/exame • Ecografia — 15 min/exame • Tomografia Computorizada (TC) — 20 minutos/exame • Ressonância Magnética (RM) — 30 minutos/exame

THANK YOU FOR YOUR ATTENTION