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¿Camino al error 0?

Discrepancias y soluciones en el quehacer radiológico diario

Daniel Eiroa
Mónica Fernández del Castillo Ascanio
Sonia Benítez Rivero
Yasmín El Khatib Ghzal
Violeta Pantoja Ortiz
Carlos Marichal Hernández

Informe Radiológico

Opinión de un experto

Opinión

Conclusión a la que se llega después de sopesar la evidencia de la que dispones

La evidencia de la que dispones puede variar a lo largo del tiempo

La opinión no es inmutable

El informe no es inmutable

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Error

Discrepancia

Diferencia entre el informe original y la consecuencia sobre el paciente

Diferencia entre el informe original y la interpretación retrospectiva de las imágenes

Radiologic Errors and Malpractice: A Blurry Distinction

Leonard Berlin[1]

Medical error: Failure of a planned action to be completed as intended [1].

Medical malpractice: Unreasonable lack of skill. Failure of a physician…to exercise that degree of skill and learning commonly applied under all the circumstances in the community by the average prudent reputable physician with the result of injury…to the [patient] [2].

3-5%

Tasa de error

No se ha logrado disminuir esta cifra en ninguna de las series estudiadas

https://doi.org/10.2214/AJR.07.2209

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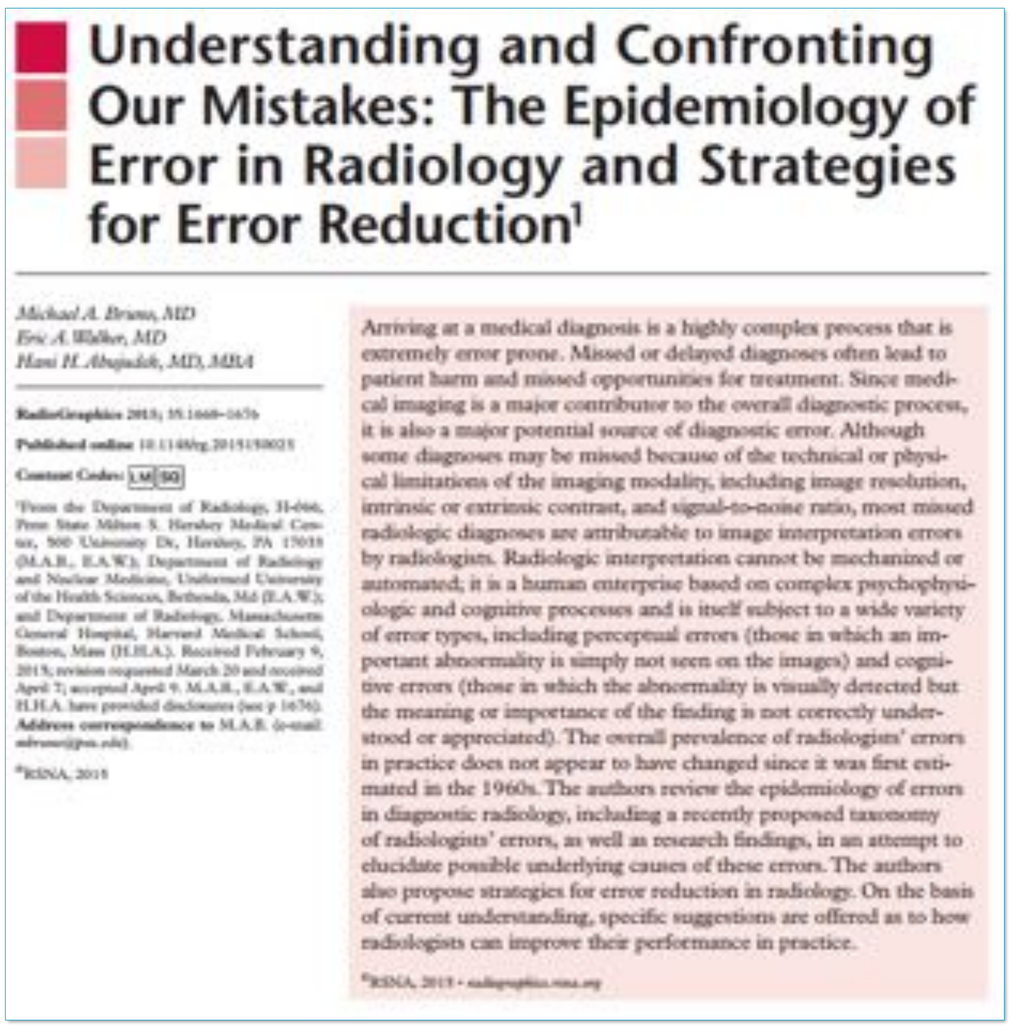

Understanding and Confronting Our Mistakes: The Epidemiology of Error in Radiology and Strategies for Error Reduction[1]

Michael A. Bruno, MD
Eric A. Walker, MD
Hani H. Abujudeh, MD, MBA

RadioGraphics 2015; 35:1668–1676

Published online 10.1148/rg.2015150023

Content Codes: [LM] [SQ]

[1]From the Department of Radiology, H-066, Penn State Milton S. Hershey Medical Center, 500 University Dr, Hershey, PA 17033 (M.A.B., E.A.W.); Department of Radiology and Nuclear Medicine, Uniformed University of the Health Sciences, Bethesda, Md (E.A.W.); and Department of Radiology, Massachusetts General Hospital, Harvard Medical School, Boston, Mass (H.H.A.). Received February 9, 2015; revision requested March 20 and received April 7; accepted April 9. M.A.B., E.A.W., and H.H.A. have provided disclosures (see p 1676). **Address correspondence to** M.A.B. (e-mail: *mbruno@pen.edu*).

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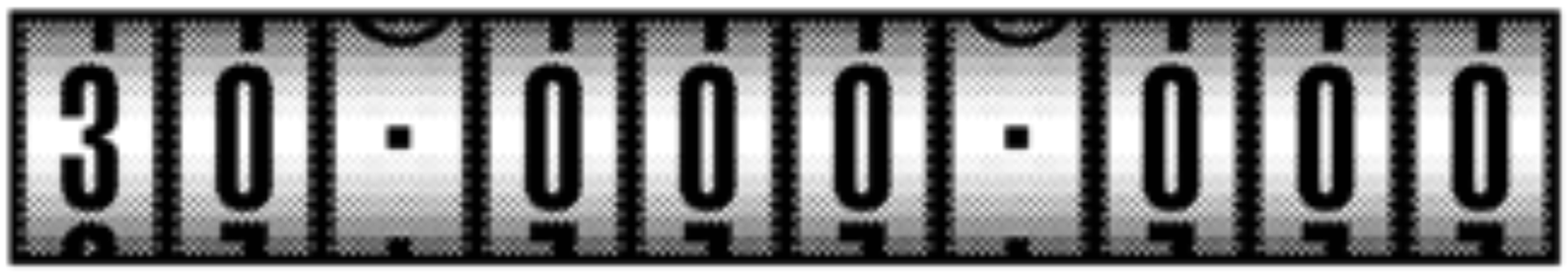
Estudios radiológicos cada año

3-5%



Discrepancias

https://doi.org/10.1148/rg.2015150023

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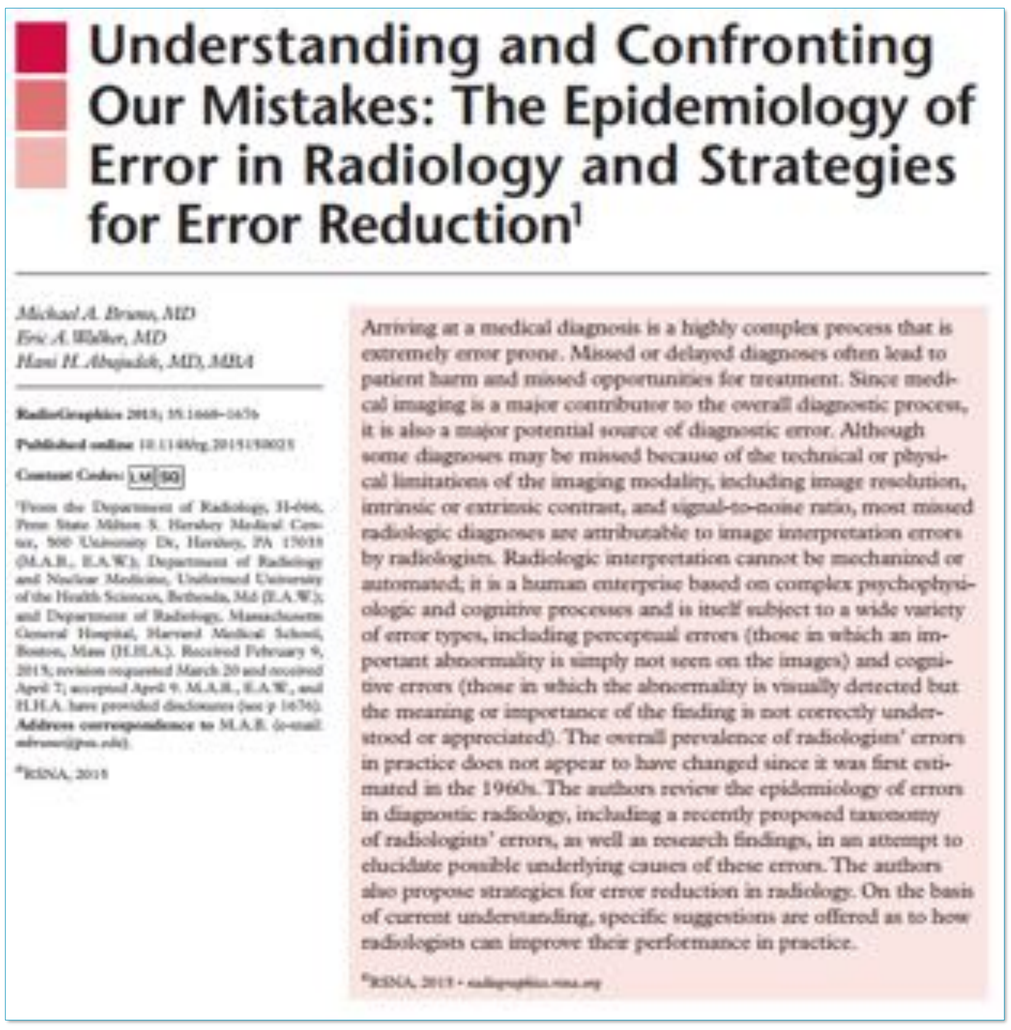

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Factores que contribuyen al error

Individuales	Sistema		
	Ambiente	Técnicos	Procesos
• Demanda física • Habilidades • Carga de trabajo • Dinámica de equipo • Gradientes de autoridad • Comunicación	• Luz • Ruido • Espacio • Distracciones	• Diseño del equipamiento • Usabilidad	• Practicidad de los procesos y protocolos • Atajos

El informe radiológico como producto básico

Presión para aumentar el número de informes

Peligro de que esto reduzca la precisión diagnóstica

Implicación médico-legal de informar demasiados estudios

https://doi.org/10.1148/rg.2015150023

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Insights Imaging (2017) 8:171–182
DOI 10.1007/s13244-016-0534-1

REVIEW

Error and discrepancy in radiology: inevitable or avoidable?

Adrian P. Brady[1]

Tipos de error

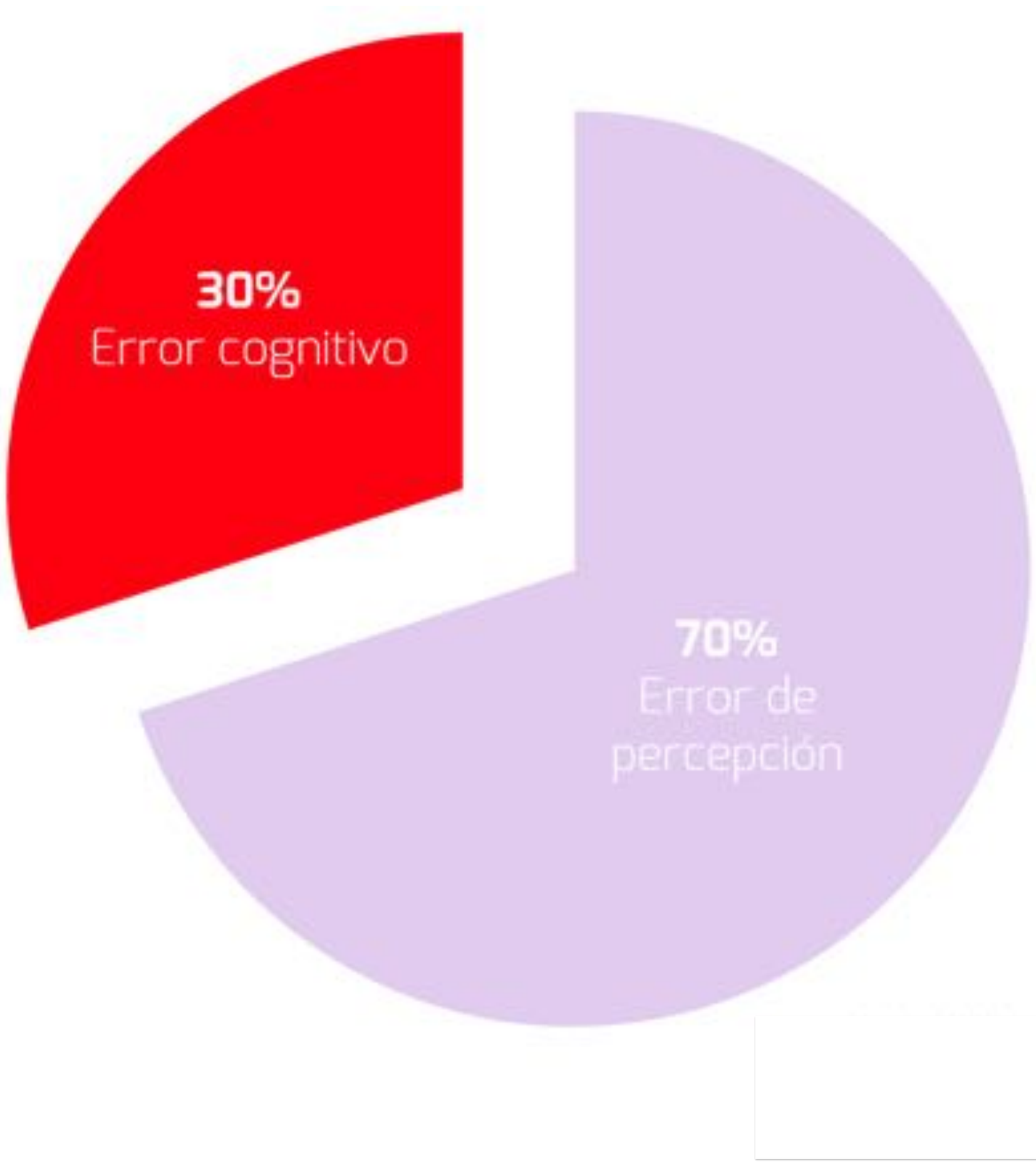

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Table 2 Kim & Mansfield radiologic error categorization, 2014 [28]

Error type	Explanation	%
Under-reading	Abnormality visible, but not reported (Fig. 2)	42%
Satisfaction of search	After having identified a first abnormality, radiologist fails to continue to look for additional abnormalities (Fig. 3)	22%
Faulty reasoning	Abnormalities identified, but attributed to wrong cause	9%
Abnormalities outside area of interest (but visible)	Many on first or last image of CT or MR series, suggesting radiologist's attention not fully engaged at beginning or end of reviewing series (Fig. 4)	7%
Satisfaction of report (alliterative reasoning [29])	Uncritical reliance on previous report in reaching diagnosis, leading to perpetuation of error through consecutive studies	6%
Failure to consult prior imaging studies		5%
Inaccurate or incomplete clinical history		2%
Correct report failing to reach referring clinician		0.08%

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Tipos de error

- **Error de comunicación**

Estructura pobre, vocabulario inadecuado, errores gramaticales u ortográficos, fallos del reconocimiento de voz, etc.

https://doi.org/10.1007/s13244-016-0534-1

En general, el radiólogo…

Está bien formado desde un punto de vista de conocimiento

Está regular formado en el “arte” del informe radiológico

Está mal formado en el “arte” de la consulta radiológica, tanto con el clínico como con el paciente

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Fatiga Visual

Long Radiology Workdays Reduce Detection and Accommodation Accuracy

Elizabeth A. Krupinski, PhD[a], Kevin S. Berbaum, PhD[b], Robert T. Caldwell, MFA[b], Kevin M. Schartz, PhD[b], John Kim, MD[b]

Purpose: The aim of this study was to measure the diagnostic accuracy of fracture detection, visual accommodation, reading time, and subjective ratings of fatigue and visual strain before and after a day of clinical reading.

Methods: Forty attending radiologists and radiology residents viewed 60 deidentified, HIPAA-compliant bone examinations, half with fractures, once before any clinical reading (early) and once after a day of clinical reading (late). Reading time was recorded. Visual accommodation (the ability to maintain focus) was measured before and after each reading session. Subjective ratings of symptoms of fatigue and oculomotor strain were collected. The study was approved by local institutional review boards.

Results: Diagnostic accuracy was reduced significantly after a day of clinical reading, with average areas under the receiver operating characteristic curves of 0.885 for early reading and 0.852 for late reading ($P < .05$). After a day of image interpretation, visual accommodation was no more variable, though error in visual accommodation was greater ($P < .01$), and subjective ratings of fatigue were higher.

Conclusions: After a day of clinical reading, radiologists have reduced ability to focus, increased symptoms of fatigue and oculomotor strain, and reduced ability to detect fractures. Radiologists need to be aware of the effects of fatigue on diagnostic accuracy and take steps to mitigate these effects.

Key Words: Reader fatigue, observer performance, visual accommodation

J Am Coll Radiol 2010;7:698-704.

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Fatiga Cognitiva

- Continuo proceso de toma de decisiones
  - Incremento de la fatiga cognitiva
  - Aumenta a lo largo de la jornada laboral
  - Toma inconsciente de “atajos mentales”
    - Errores diagnósticos

- Aumenta conforme aumenta el tiempo de trabajo
  - Efecto más marcado en las guardias

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Ceguera Atencional

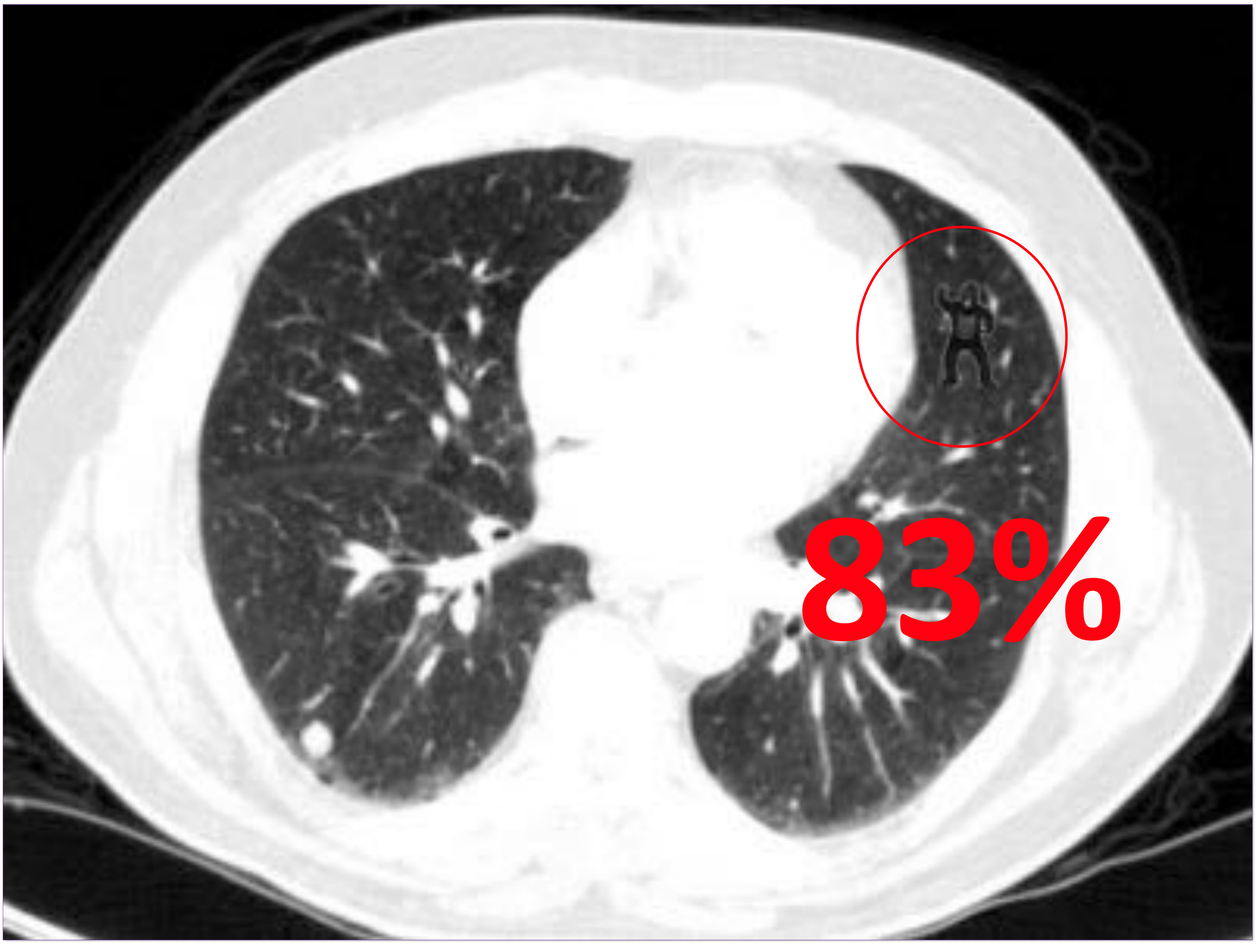
Published in final edited form as:
Psychol Sci. 2013 September ; 24(9): 1848–1853. doi:10.1177/0956797613479386.

"The invisible gorilla strikes again: Sustained inattentional blindness in expert observers"

Trafton Drew, **Melissa L. H. Vo**, and **Jeremy M. Wolfe**
Trafton Drew: TraftonDrew@gmail.com

Abstract

We like to think that we would notice the occurrence of an unexpected yet salient event in our world. However, we know that people often miss such events if they are engaged in a different task, a phenomenon known as "inattentional blindness." Still, these demonstrations typically involve naive observers engaged in an unfamiliar task. What about expert searchers who have spent years honing their ability to detect small abnormalities in specific types of image? We asked 24 radiologists to perform a familiar lung nodule detection task. A gorilla, 48 times larger than the average nodule, was inserted in the last case. 83% of radiologists did not see the gorilla. Eye-tracking revealed that the majority of the those who missed the gorilla looked directly at the location of the gorilla. Even expert searchers, operating in their domain of expertise, are vulnerable to inattentional blindness.



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Sesgos Cognitivos

Bias	Explanation
Anchoring bias	During the process of reporting a study, the radiologist fixes upon an early impression, and fails to adapt or change that view, discounting any subsequent information that may conflict
Framing bias	The radiologist is unduly influenced by the way the question or problem is framed, e.g. if the clinical information provided in a request for a CT states "young patient with palpable mass, probable Crohn's disease", a bowel mass may be interpreted as being likely due to Crohn's, discounting possible malignancy
Availability bias	Tendency to suggest diagnoses that readily come to mind.
Confirmation bias	Tendency to seek evidence to support a diagnostic hypothesis already made, and to ignore evidence refuting that hypothesis
Satisfaction of search	Tendency to stop looking for additional abnormal findings on a study once an initial probable diagnosis is identified
Premature closure	Tendency to accept a diagnosis before proof or verification is obtained
Outcome bias	Naturally empathic inclination to favour a diagnosis that will result in a more favourable outcome for the patient, even if unsupported by evidence
Zebra retreat	Inclination of a radiologist to hold back from making a rare diagnosis due to lack of confidence about reporting such an unusual condition, despite supporting evidence

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Where Failures Occur in the Imaging Care Cycle: Lessons From the Radiology Events Register

D. Neil Jones, BMBS[a,b], M.J.W. Thomas, BA, MEnvSt, PhD[b],
Catherine J. Mandel, MBBS[c], J. Grimm, BAppSc(Physio)[d],
N. Hannaford, RN, DipApplSc[e],
Timothy J. Schultz, BSc(Hons), GradDiplPubHlth, PhD[e,f],
William Runciman, MBBCh, PhD[b,e]

El servicio de urgencias constituye la “tormenta perfecta” para el error médico

Pacientes inestables

HC incompletas

Decisiones críticas

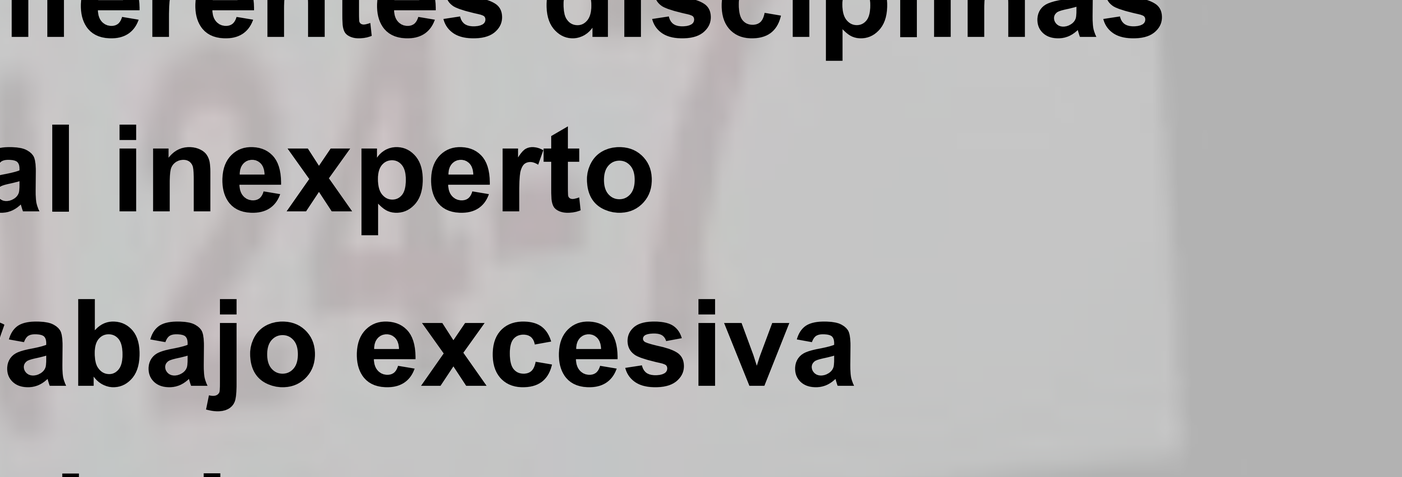
Tareas concurrentes

Implicación de diferentes disciplinas

Personal inexperto

Carga de trabajo excesiva

Horario largo



EMERGENCY RADIOLOGY SPECIAL FEATURE: REVIEW ARTICLE

Errors in imaging patients in the emergency setting

[1]ANTONIO PINTO, MD, PhD, [2]ALFONSO REGINELLI, MD, PhD, [3]FABIO PINTO, MD, [4]GIUSEPPE LO RE, MD, [4]FEDERICO MIDIRI, MD, [5]CARLO MUZJ, MD, [1]LUIGIA ROMANO, MD and [5]LUCA BRUNESE, MD

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[3]Department of Diagnostic Imaging, Manzanise Hospital, ASL Caserta (CE), Caserta, Italy
[4]Section of Radiological Sciences, DIBIMED, University of Palermo, Palermo, Italy
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Soluciones

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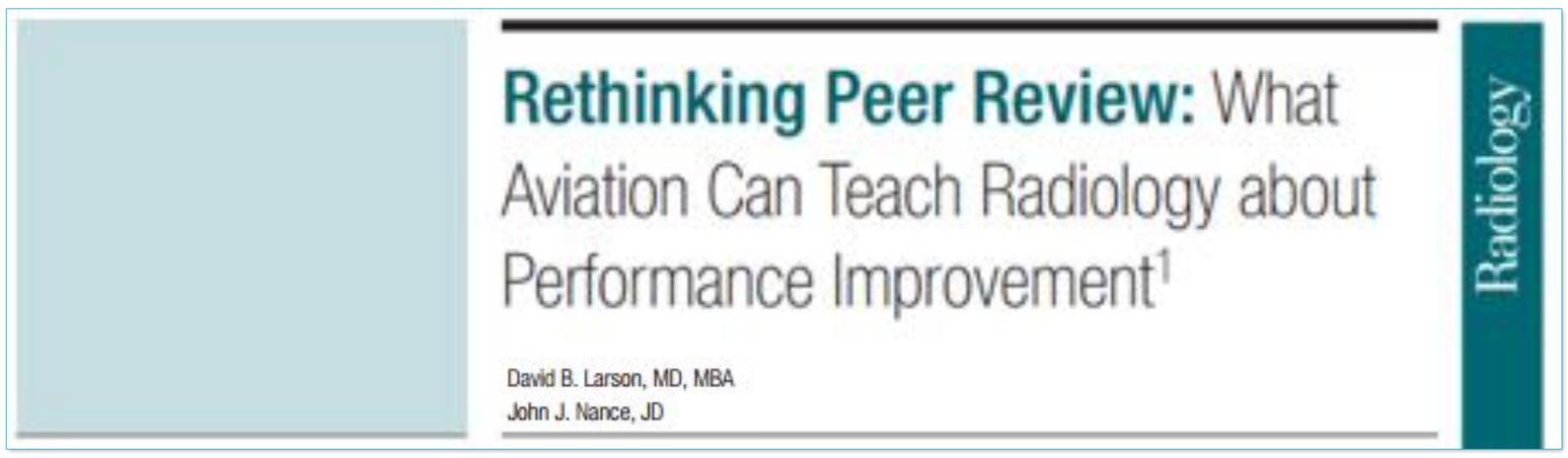

*If the experience of aviation offers one piece of advice, it is that the philosophy of trying to decide **who** was wrong rather than **what** went wrong prevents intelligent investigation into causes of errors and impedes the development of successful solutions*

https://doi.org/10.1148/radiol.11102222

Modelos de reacción al error

Basado en el individuo

- El error el fruto de la aberración individual
- Reacción:
  - Autocensura
  - Culpa
- Error = inmoral

Basados en el sistema

- El error es esperable pero evitable
- Reacción
  - ¿Por qué y Cómo?
  - No ¿quién?
- Error = fallo del sistema

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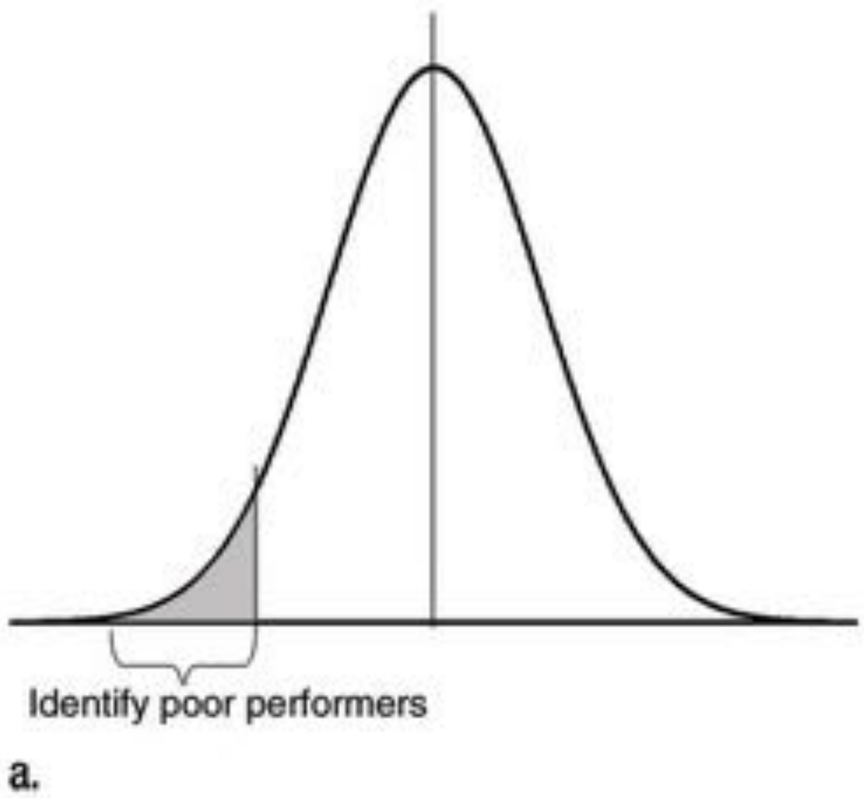
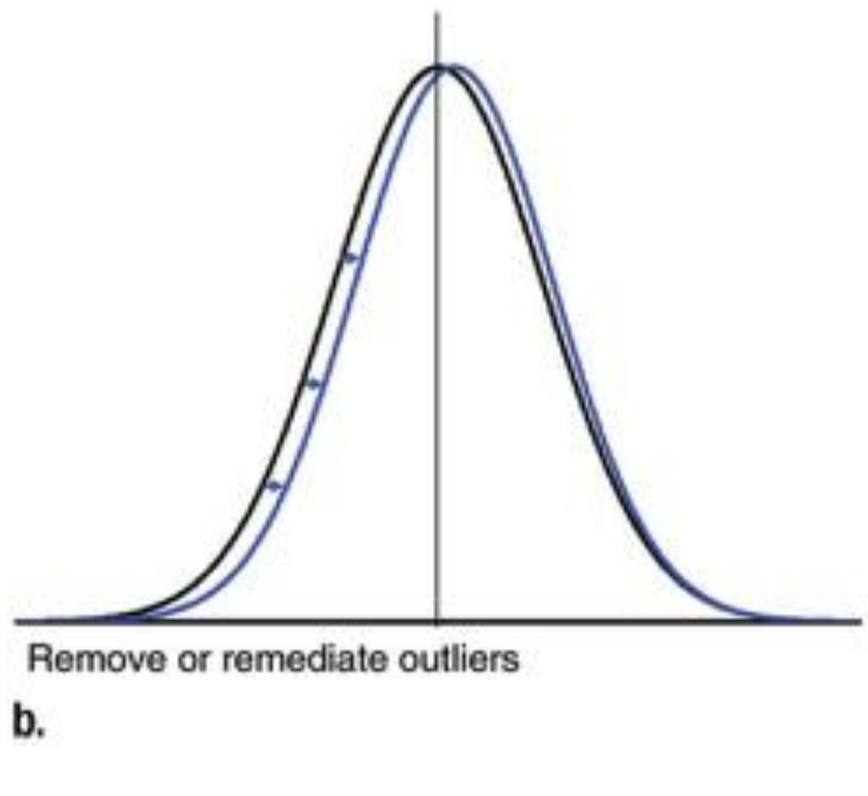
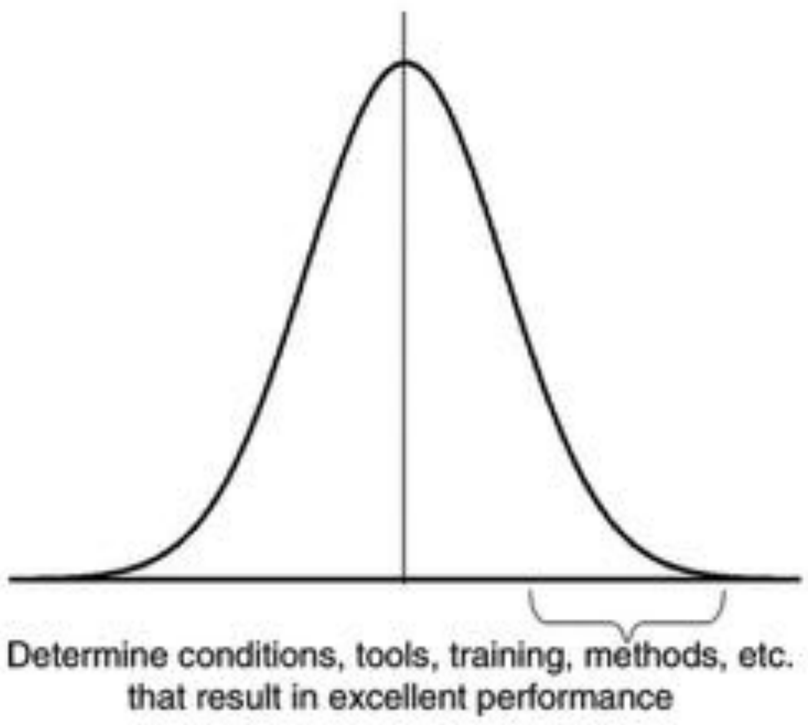
Rethinking Peer Review: What Aviation Can Teach Radiology about Performance Improvement[1]

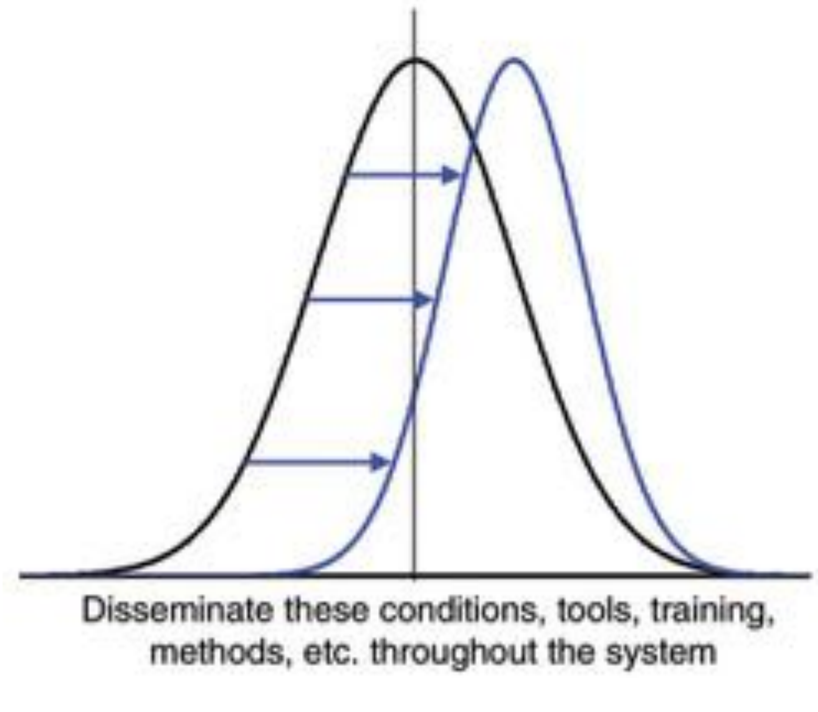
David B. Larson, MD, MBA
John J. Nance, JD

Radiology









https://doi.org/10.1148/radiol.11102222

Revisión de errores ¿es útil?

- No hay evidencia científica que apoye una reducción **estadísticamente significativa** de la tasa de errores radiológicos en contextos en los que se realiza revisión de errores – sesión de errores radiológicos.

El error radiológico va más allá del error del radiólogo

Error Review: Can This Improve Reporting Performance?

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Reducir la imprecisión

Medical–Legal • Malpractice and Ethical Issues In Radiology

Liability for Typographical Errors

QUESTION: I would like to ask your opinion about a case in which the conclusion of a radiology report left out the word "no." Consequently, the conclusion stated, "Significant lymphadenopathy identified," instead of "No significant lymphadenopathy identified."

It should be noted that in the body of the report, the radiologist made no reference to lymphadenopathy. The mistake was picked up 3 weeks later, but the patient now claims that because he was told that he "had cancer," he suffered "psychological trauma." The patient's attorney is in the process of filing a medical malpractice lawsuit. Have you come across this scenario before, and can you shed any light on the subject?

DR. BERLIN'S REPLY: In response to your query, yes, I have seen several cases where radiology reports contain "word" errors similar to what you are confronted with. Indeed, the most common of these types of errors is the omission of the word "no" in a strategic sentence, especially if the sentence is in the impression or conclusion. Occasionally, I have also seen the reverse situation: the radiologist describes a lesion suspicious for carcinoma on an abdominal CT in the body of the report but then in the impression forgets to mention it, thereby delaying the diagnosis of the carcinoma.

The American College of Radiology *Practice Guideline on Communication of Diagnostic Imaging Findings* states: "The final report should be proofread to minimize typographical errors, accidentally deleted words, and confusing or conflicting statements." Thus, from a strictly legal point of view, the actions of the radiologist in a case such as you described may well constitute negligence (failure to conform to the standard of care). It is true that the recipient of the report probably also will be negligent for failing to read the report in its entirety, but that does not relieve the radiologist of negligence in failing to prepare an accurate report in the first place.

In cases where the diagnosis of carcinoma is delayed, patient injury is usually apparent. In your case, the "injury" is equivocal: "psychological trauma." It seems to me that the radiologist in your case technically breached the standard of care, but whether the patient truly suffered an injury as a result is questionable. The lawyers will have to deal with the reality of the so-called injury. However, should a case similar to what you describe ever go to trial, the plaintiff's attorney can make the defendant radiologist look very sloppy in front of a jury or judge: "You mean to tell us, Dr. Radiologist, that you were 'too busy' to take an extra 2 minutes to proofread your report for accuracy, and as a result this patient sustained a serious injury?" Needless to say, the radiologist is not likely to garner any respect or sympathy from the jury or judge!

Bottom line: Proofreading of our radiologic reports is required, although we all realize that most of us have limited or no time to do it. But we have to understand that the ultimate responsibility for typographical errors in radiologic reports lies with the radiologist who rendered and signed the report.

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DOI:10.2214/AJR.10.5500
WEB—This is a Web exclusive article.

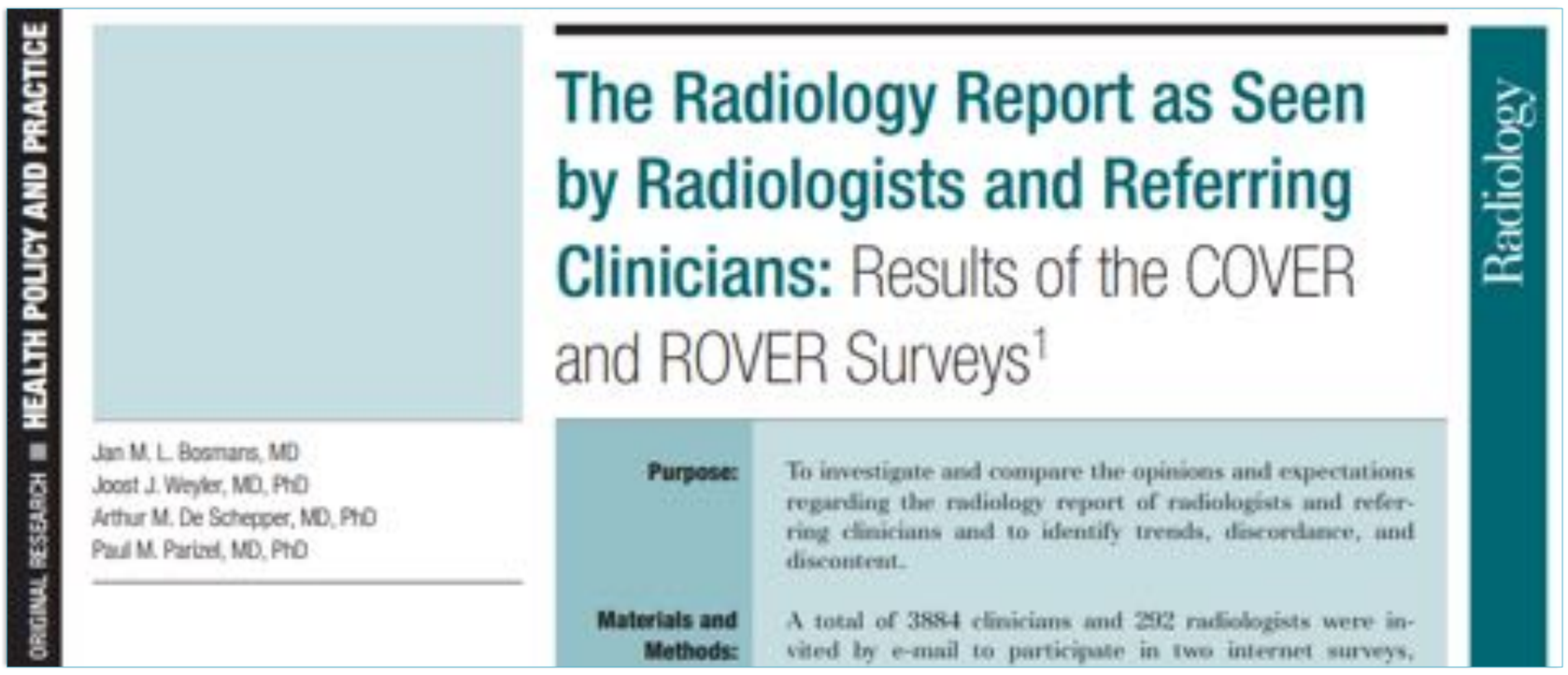
Revisar el informe radiológico para comprobar que dice lo que quieres que diga

Estrategias para minimizar el error radiológico

- Entrenamiento en la **autoconcienciación** y **autosensibilización**
  - Ser conciente de los sesgos inherentes a cada individuo
- Uso de **correlación radio-patológica**
- Definir métricas de calidad e intentar cumplirlas
  - Fomentar una cultura de cuestionamiento y validación
  - Sesión de **discrepancias diagnósticas** = Sesión de **mejora de la calidad**

Estrategias para minimizar el error radiológico

- Uso de informe estructurado
  - Ha demostrado mejorar el contenido del informe, su claridad e inteligibilidad en TC de cuerpo.
  - El 80% de los clínicos prefiere informes estandarizados



ORIGINAL RESEARCH ■ HEALTH POLICY AND PRACTICE

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Arthur M. De Schepper, MD, PhD
Paul M. Parizel, MD, PhD

The Radiology Report as Seen by Radiologists and Referring Clinicians: Results of the COVER and ROVER Surveys[1]

Purpose: To investigate and compare the opinions and expectations regarding the radiology report of radiologists and referring clinicians and to identify trends, discordance, and discontent.

Materials and Methods: A total of 3884 clinicians and 292 radiologists were invited by e-mail to participate in two internet surveys,

Radiology

Estrategias para minimizar el error radiológico

- **Revisar** el texto del reconocimiento de voz
- Uso de sistemas de ayuda al diagnóstico (**CAD**)
- **Relajación** de la vista
  - Al menos dos veces por hora
- Solución de errores según el modelo de la aviación

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El radiólogo, a nivel individual, debe…

- Tener las **habilidades técnicas** suficientes
- Tener **habilidades no técnicas**
  - Comunicativas
  - Trabajo en equipo
  - Liderazgo
  - Toma de decisiones
  - Profesionalidad
- Trabajar en un **entorno organizado** y con una **carga de trabajo razonable**
- Estar **descansados** y alerta
- Tener el control y estar felices
  - **Evitar interrupciones**
- Evitar el estrés indebido

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Conclusiones

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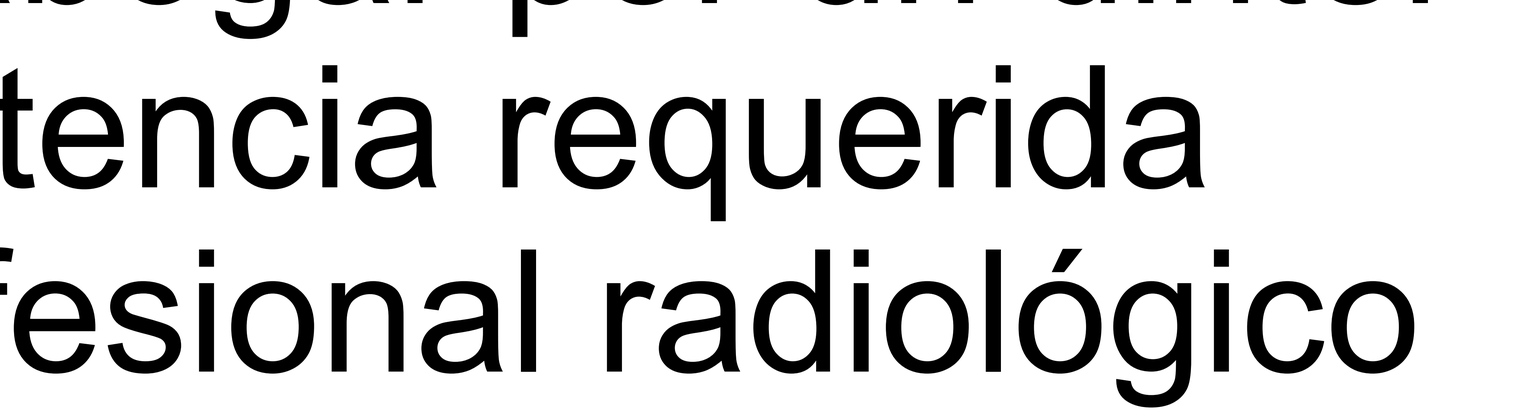
Conclusiones

- Los errores son **inevitables**
  - Se debe aceptar la falibilidad del radiólogo
- La mayor parte de los errores son poco significativos
  - Sin embargo hay errores importantes que pasan desapercibidos
- Hay que abogar por un dintel de competencia requerida por el profesional radiológico
  - Es complicado establecerlo


Insights Imaging (2017) 8:171–182
DOI 10.1007/s13244-016-0534-1

REVIEW

Error and discrepancy in radiology: inevitable or avoidable?

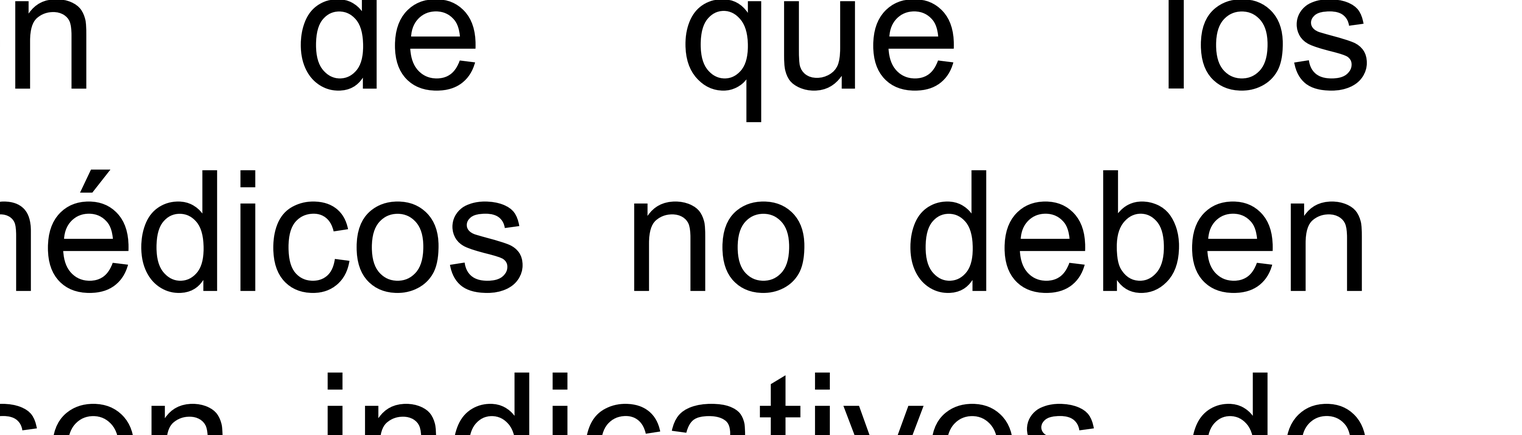
Adrian P. Brady[1]

https://doi.org/10.1007/s13244-016-0534-1

Conclusiones

- Los errores en radiología son prevenibles pero inevitables

- El abordaje tradicional del error médico ha sido “señalar, avergonzar y culpabilizar”, basado en la percepción de que los errores médicos no deben existir y son indicativos de un fracaso personal y profesional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REVIEW

Error and discrepancy in radiology: inevitable or avoidable?

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"Errors in judgement must occur in the practice of an art which consists largely in balancing probabilities"

Sir William Osler

¿Camino al error 0?

Discrepancias y soluciones en el quehacer radiológico diario

Daniel Eiroa
Mónica Fernández del Castillo Ascanio
Sonia Benítez Rivero
Yasmín El Khatib Ghzal
Violeta Pantoja Ortiz
Carlos Marichal Hernández