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## ORIGINAL ARTICLE

### Unnecessary routine laboratory tests in patients referred for surgical services<sup>☆</sup>

María del Pilar Mata-Miranda<sup>a,\*</sup>, Norberto Cano-Matus<sup>a</sup>,  
Margarita Rodríguez-Murrieta<sup>b</sup>, Idalia Guarneros-Zapata<sup>c</sup>, Mario Ortiz<sup>d</sup>



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<sup>a</sup> Jefatura de Servicios de Prestaciones Médicas, Coordinación de Investigación, Instituto Mexicano del Seguro Social, Delegación Veracruz Norte, Xalapa, Veracruz, Mexico

<sup>b</sup> Departamento de Enfermería, Unidad de Medicina Familiar No. 66, Instituto Mexicano del Seguro Social, Delegación Veracruz Norte, Xalapa, Veracruz, Mexico

<sup>c</sup> Departamento de Estomatología, Unidad de Medicina Familiar No. 66. Instituto Mexicano del Seguro Social, Delegación Veracruz Norte, Xalapa, Veracruz, Mexico

<sup>d</sup> Departamento de Laboratorio Clínico, Unidad de Medicina Familiar No. 66, Instituto Mexicano del Seguro Social, Delegación Veracruz Norte, Xalapa, Veracruz, Mexico

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#### KEYWORDS

Routine;  
Surgery;  
Laboratory tests;  
Unnecessary

#### Abstract

**Background:** The usefulness of the lab analysis considered routine testing for the identification of abnormalities in the surgical care has been questioned.

**Objective:** To determine the percentage of unnecessary laboratory tests in the preoperative assessment as well as to estimate the unnecessary expenses.

**Materials and methods:** A descriptive, cross-sectional study of patients referred for surgical evaluation between January 1st and March 31st 2013. The database of laboratory testing and electronic files were reviewed. Reference criteria from surgical services were compared with the tests requested by the family doctor.

**Results:** In 65% of the patients ( $n=175$ ) unnecessary examinations were requested, 25% ( $n=68$ ) were not requested the tests that they required, and only 10% of the patients were requested laboratory tests in accordance with the reference criteria ( $n=27$ ). The estimated cost in unnecessary examinations was \$1,129,552 in a year.

**Discussion:** The results were similar to others related to this theme, however, they had not been revised from the perspective of the first level of attention regarding the importance of adherence to the reference criteria which could prevent major expenditures.

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\* Corresponding author at: Lomas del Estadio s/n, Col Centro C.P. 91000, Xalapa, Veracruz, Mexico. Tel.: +52 22 8817 9703; fax: +52 22 8818 3421.

E-mail address: [maria.matami@imss.gob.mx](mailto:maria.matami@imss.gob.mx) (M.d.P. Mata-Miranda).

**Conclusion:** It is a priority for leaders and operational consultants in medical units to establish strategies and lines of action that ensure compliance with institutional policies so as to contain spending on comprehensive services, and which in turn can improve the medical care.

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## PALABRAS CLAVE

Rutina;  
Cirugía;  
Exámenes de  
laboratorio;  
Innecesario

## Exámenes de laboratorio de rutina innecesarios en pacientes referidos para atención por servicios quirúrgicos

### Resumen

**Antecedentes:** Se ha cuestionado la utilidad de los exámenes de laboratorio considerados de rutina para la identificación de anomalías en la atención quirúrgica.

**Objetivo:** Determinar el porcentaje de exámenes de laboratorio innecesarios en la valoración preoperatoria, así como estimar el gasto innecesario.

**Material y métodos:** Estudio transversal, descriptivo de pacientes para valoración quirúrgica, del 1 de enero al 31 de marzo de 2013. Se revisó la base de datos de laboratorio y el expediente electrónico. Se compararon los criterios de referencia de los servicios quirúrgicos con los exámenes solicitados por el médico familiar.

**Resultados:** En el 65% de los pacientes ( $n = 175$ ) se solicitó exámenes innecesarios, al 25% ( $n = 68$ ) no se les solicitó los exámenes que requerían, y únicamente al 10% de los pacientes se les solicitó los exámenes de laboratorio de acuerdo con los criterios de referencia ( $n = 27$ ). El gasto estimado en un año fue de \$1,129,552 en exámenes innecesarios.

**Discusión:** Los resultados fueron similares a otros relacionados con el tema, sin embargo, no se había revisado desde la perspectiva del primer nivel de atención la importancia que tiene el apego a los criterios de referencia, lo que podría evitar mayores gastos.

**Conclusiones:** Resulta prioritario que las áreas directivas y de asesoría operativa en las unidades médicas de primer nivel de atención médica establezcan estrategias y líneas de acción que aseguren el cumplimiento de políticas institucionales para la contención del gasto en servicios integrales y que, a su vez, mejoren la atención médica.

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## Background

During healthcare, one method of studying disease in any of its stages is through physical examination and a full medical history. This study is complemented with laboratory tests, to identify abnormalities which may put the patient at risk, provide an initial parameter of the patient's general state of health so that any major post-operative changes may be monitored and to identify major asymptomatic conditions.<sup>1-3</sup> Laboratory tests considered routine for surgical assessment vary depending on the type of surgery, the patient's own condition and the patient's history of chronic or severe disease.<sup>3</sup> The following tests are generally considered to be routine: complete haematic biometry, blood chemistry, serum electrolytes and a general urine test, as a reference of the patient's metabolic or infectious state of health.

It has been proven that the request for these tests is of little practical assistance to patients who require non cardiovascular surgery for prediction of complications, especially clinically healthy patients under 40.<sup>3-5</sup> As a result, healthcare costs increase due to too many routine para clinical tests, which are unnecessary, and it has been estimated

that between \$2,811,097 and \$3,345,206<sup>2</sup> Mexican pesos have been spent. In United States annual costs for these services have been estimated at \$3,000,000,000 dollars.<sup>4</sup>

In patients who require outpatient surgical procedures, both endoscopic and open surgery type, 30.6% of tests are abnormal, but in only 1.3% are they so clinically important as to suspend surgery and in those patients who were not requested to have or who do not have routine laboratory tests, a high percentage do not present with post-operative complications.<sup>5</sup>

The abnormal laboratory test results are more frequent in age groups of 41–60 and those over 60, with no statistically significant differences in the frequency of complications or death among those patients' with abnormal results (in haematic biometry, glycaemia, electrolytes, coagulation and general urine tests) and those patients with normal test results. Only abnormal test results in ureic nitrogen/creatinine test are related to cardiac complications after surgery and a longer hospital stay period.<sup>3</sup> The factors associated with complications in surgery are: being over 40, type of surgery and level of invasion of surgical procedure, together with individual history of diseases found in the clinical history of the patient.<sup>6</sup>

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