

Table 1
Number of Visits and Patients Seen in the Pulmonology Department.

	June 2011 – May 2012	June 2012 – May 2013	June 2013 – May 2014
Clinic visits in person	4099	3948	3558
First appointments	2006	1016	893
Follow-up appointments	2093	2674	2142
Virtual visits		1470	1427
Dedicated COPD clinic		258	523
Number of hospital admissions	Year 2012 501	Year 2013 417	Year 2014 195

Virtual Clinic takes place 2 days a week, and up to 15 cases are discussed in each session. The consultant pulmonologist prioritizes cases by examining the data provided online by the PCC (clinical history, physical examination, complementary tests) and performs a triage, by either indicating to the treating physician the procedure to follow, or by personally evaluating the patient. In the latter case, the tests required for the first appointment are performed on the same day in the outpatient clinic (chest X-ray, spirometry or blood gases), and the patient is referred directly to the right clinic: either the general pulmonology clinic held 4 days a week or else the dedicated COPD clinic, which takes place once a week. Patients already monitored in the pulmonology clinic whose respiratory disease worsens can immediately access either of the 2 clinics without the need for a referral from the PCC.

In less than 3 years, this formula has reduced the overall number of PCC consultations by 14%, and the number of first appointments by 56%. The reduction in workload meant that chronic patients can be more closely monitored, leading to a 61% reduction in the number of hospital admissions to the pulmonology department, while follow-up appointments rose by 15% (Table 1).

Finally, the Respiratory Virtual Clinic increased the number of consultations that could be resolved by the PCC by 19%, underscoring the efficiency of this type of management.

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Pleural Empyema in a Pneumonectomized Patient as a Complication of Colonoscopy*



Empiema pleural en paciente neumonectomizado como complicación de una videocolonoscopia

To the Editor:

Post-pneumonectomy empyema (PPE) is a serious disease generally associated with high rates of post-operative morbidity and mortality. The most common cause is bacterial contamination from bronchopleural fistula. Infections from other intrathoracic sources, such as mediastinitis, pneumonia, and hematogenous dissemination from extrathoracic sources, are less common.

We report the case of a pneumonectomized patient who developed empyema in the residual chest cavity as a result of bacteremia following video-assisted colonoscopy. To our knowledge, this is the first report in the medical literature of pleural empyema as a complication of colonoscopy.

A 63-year-old man presented with a history of right pneumonectomy by video-assisted thoracoscopy 2 years previously for squamous cell lung cancer, with no evidence of recurrence to date.

Following a video-assisted colonoscopy, the patient developed an episode of fever and bacteremia, associated with pain and edema in the same hemithorax as the pneumonectomy. Pleural fluid was drained by thoracentesis and blood cultures were performed, revealing empyema and bacteremia caused by *Escherichia coli*, respectively.

When the patient was admitted to the emergency department of our hospital, he was febrile, and had dyspnea, arterial hypotension, tachycardia and tachypnea, and leukocytosis on blood tests. Chest multislice tomography showed an abscess occupying the entire remaining pleural cavity, impinging on the overlying chest wall (Fig. 1). The patient was hemodynamically stabilized and pleural decortication was performed by video-assisted thoracoscopy. His progress was satisfactory and he was discharged 10 days after surgery.

The main factors associated with PPE are related with post-operative complications,¹ such as bronchopleural fistula, or intra-operative events, such as contamination of the pleural cavity; the condition generally develops in the first few weeks after surgery. Presentation up to 1 year after pneumonectomy, described as late-onset PPE, is extremely rare.² In this entity, infection of the residual chest cavity due to hematogenous bacterial dissemination from a distant focus of sepsis can be observed. Our patient presented a clinical picture of empyema of the residual cavity due to an episode of septicemia after video-assisted colonoscopy. The main complications of gastrointestinal tract endoscopies are diverse, the most common being post-colonoscopy pain, perforated gut, and gastrointestinal bleeding.³ Although septic complications have been described after the passage of bacteria from the gastrointestinal tract to the bloodstream,⁴ these are rare.

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Fig. 1. Pleural empyema of the remaining cavity (black arrow) associated with an abscess contiguous with the chest wall (white arrow).

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Non-Invasive Ventilation: Has it Been Forgotten in the Diagnosis-Related Groups?*



Ventilación no invasiva: una realidad olvidada en los grupos relacionados de diagnóstico

To the Editor:

Nowadays, no-one questions the role of non-invasive ventilation (NIV) in the routine practice of a pulmonology department. However, despite its widespread use, we encounter serious difficulties when coding this intervention in the diagnosis-related groups (DRG). As we know, the DRG system groups patients with similar clinical characteristics and resource requirements into categories. In Spain, we have been using the All Patient Refined-DRG (APR-DRG) since 1997, which provides an additional 4 severity levels and 4 mortality risk levels.¹ The main problem is that no DRGs specifically mention NIV.

Criner et al.² drew attention to this problem in 1995, when they reported that failure to allocate the real cost of NIV could prevent hospitals from obtaining reimbursement for this treatment. Other authors have alerted us to the urgent need for incorporating NIV in DRG coding to prevent a situation in which clinicians, compelled by their managers, may even prefer to intubate patients rather than apply NIV, in order to receive greater reimbursement.^{3,4}

We have reviewed version 25.0 of the DRG definitions manual,¹ and found that NIV is not mentioned at all. The term “invasive mechanical ventilation” is specified in only 2 DRGs: 881 (respiratory system diagnosis with mechanical ventilation more than 96 h) and 882 (respiratory system diagnosis with mechanical ventilation less than 96 h). The term “mechanical ventilation for certain clinical situations” appears as a procedure classified as a major complication or comorbidity (CC) in other disease entities. This is the case for DRG 588 (bronchitis and asthma, age <17 years with major CC),

589 (bronchitis and asthma, age <18 years with major CC), 540 (respiratory infections and inflammations except uncomplicated pneumonia with major CC), and 541 (uncomplicated pneumonia and other respiratory disorders except bronchitis, asthma with major CC) (Table 1).

If NIV is administered to a patient with obesity hypoventilation syndrome, things become even more complicated. The term “hypoventilation” does not figure in the manual, and the term “obesity” only appears in surgical DRG 288 (gastric procedures for obesity). However, the term “respiratory failure” appears as a CC in many other diseases.

How, then, are DRGs being applied for patients seen on the pulmonology ward? How do we code our discharge reports? Is it correct to include NIV administered to hypoventilated patients in DRG 588? Should severely ill patients who receive NIV for more than 96 h be classified as DRG 881? Could this failure to provide clear criteria lead to local arrangements in different hospitals, meaning that different DRGs are applied to the same diseases and procedures? We firmly believe that NIV needs to be included as a separate entity in DRG manuals. This would give NIV recognition as a product, and allow this therapeutic tool to be correctly valued.

Table 1

Diagnosis-Related Groups From Major Diagnostic Category 4: “Respiratory Tract Diseases and Disorders” in Which the Term “Mechanical Ventilation” Appears.

DRG	Description	Weight
540	Respiratory infections and inflammations except uncomplicated pneumonia with major CC	3367.9
541	Uncomplicated pneumonia and other respiratory disorders except bronchitis, asthma with major CC	2343.1
588	Bronchitis and asthma. Age >17 years with major CC	1486.6
589	Bronchitis and asthma. Age <18 years with major CC	1736.4
881 ^a	Respiratory system diagnosis with mechanical ventilation >95 h	10,748.8
882 ^a	Respiratory system diagnosis with mechanical ventilation <96 h	4642.5

CC, complication or comorbidity; DRG, diagnosis-related groups.

^a Invasive mechanical ventilation.

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