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DOI: 10.17235/reed.2019.6347/2019
Link: PubMed (Epub ahead of print)

Please cite this article as:

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Endoscopy units – *Statu quo*

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Local management of a gastrointestinal endoscopy unit is usually conditioned by its physical structure and its provision of both technical and human resources. It often involves a legacy of guidelines and plans that were developed for scenarios far removed from current needs and actualities. Any proposals to improve and update a medical provision must involve an understanding of both qualitative and quantitative facts. The paper published in this issue of REED by Juan Martínez on behalf of the Sociedad Valenciana de Patología Digestiva (SVPD) is one such example (1). The authors conducted a survey in a representative number of hospitals of the Valencian Community (Comunidad Valenciana, CV) and respondents amounted to 96%. Data were collected on architectural dimensions, technological equipment, functional structure, sedation, activities, waiting lists, colorectal cancer (CRC) screening programs, pediatric endoscopy, advanced endoscopy, and endoscopy on-call services. Respondent hospitals included large third-level institutions as well as smaller county sites. Making comparisons between them may result in interpretation errors. Clearly, physical dimensions, selected technology, human resources, and advanced techniques should be superior in higher-level hospitals. However, a number of parameters should be comparable, including sedation, CRC screening programs, and waiting lists. Some provisions and services should be equitable for all citizens. Equity is a basic right of all Spanish citizens, as laid down in article 1.1 of the Spanish Constitution: “Spain is established as a social and democratic State, subject to the rule of law, which advocates as the highest values of its legal order the following: liberty, justice, equality and political pluralism”. Equality among citizens is a common denominator of many
Magnae Cartae. Indeed, the French Constitution has “Liberté, égalité, fraternité” as its motto.

In order to pass judgement on the data reported by the Valencian Community survey (ECV), these will be split up into five analysis topics: architectural structure, technical and human resources, sedation, activity, and CRC screening program. Regardless of hospital level, the architectural structure of gastrointestinal endoscopy units should share some common structural, legal, and functional aspects, including: reception desk, waiting room, check-in area, endoscopy rooms, recovery room, information room, cleaning and disinfection area, storage area, locker room, toilets, and staff living room. Unit design should include a number of environmental considerations such as sunlight, privacy, and acoustics, as well as regulatory requirements regarding water treatment, air filtration, radiation protection, electrical safety, shielding, accessibility, infection control, information technology, and communications. All this contextualized into well-defined functional circuits both for patient flow and separate clean and soiled endoscopic materials traffic. The number of endoscopy rooms an endoscopy unit requires may be estimated based on annual workload. An endoscopy room is deemed necessary for every 1,000 to 1,500 procedures per year. The mean surface area recommended for each endoscopy room is 36 square meters (2-6). Agility and productivity in an endoscopy room are directly related to design, dimensions, and functional flows.

Technological endowment with endoscopy towers, different endoscope types, and automatic washers, as well as the techniques being performed, varied considerably among survey respondents, and we interpret this as influenced by hospital level. However, an average of 2.1 gastroscopes per room and 2.6 colonoscopes per room stands out. These numbers require a highly demanding endoscope cleaning and disinfection rate, and make it impossible to keep up with work schedule should a scope malfunction or break down. It seems an insufficient ratio to us. We think a rate of three gastroscopes/room and three colonoscopes/room would match actual requirements and contingencies better. The authors do not report on the numbers of procedures performed with each endoscope or technological upgrading. Keeping endoscopes in good condition and incorporating high-definition, magnification, and
electronic chromoendoscopy directly impacts lesion identification and characterization (7), its implementation being particularly interesting for CRC screening programs. These two highly significant parameters (number of procedures per endoscope and technological upgrading) were not analyzed by the ECV. We commend this analysis in future surveys.

Basic human resources in an endoscopy unit include: physician, nurse and clinical assistant. Hospital size conditions the presence or absence of gastroenterologists full-time dedicated to endoscopic procedures. The increased number and complexity of therapeutic techniques require an expert, well-trained nursing staff knowledgeable about the materials involved. This also applies to clinical assistants, who are entrusted with looking after the delicate, expensive endoscopy equipment, as well as with scope and ancillary instrumentation cleaning and disinfecting. Nurses and clinical assistants should be given professional status and become a stable workforce. Rather sooner than later hospital managements should understand that such professionalization and stability are key, and surely cost-effective, regarding endoscopy nurses. My recommendation would be that every endoscopy room be staffed by three professionals: physician, nurse and clinical assistant. When it is the endoscopist who directs sedation, the staff should be increased by an additional nurse exclusively dedicated to sedation administration and control in the scenarios envisaged by the 2014 Clinical Practice Guidelines of the Spanish Society of Digestive Endoscopy (SEED) (8). These recommendations are a long way off the real situation unveiled by the ECV, where nurses partake of other activities (45.8%) and clinical assistants are shared by two rooms (37.5%) or even nonexistent (12.5%).

The data offered by this ECV are particularly interesting regarding endoscopic sedation. Some facts should be positively highlighted: monitoring is universal, double aspiration occurs in 66.6% and dual oxygen outlets are present in 50% of cases. However, significant differences exist in sedation type and direction, oscillating between absent sedation for gastroscopy in 16.7% of hospitals and anesthesiologist-directed general anesthesia. Territorial diversity stands out; endoscopist-directed sedation with propofol is offered in 90% of hospitals in the Alicante province, but only in 25% of hospitals in the province of Castellón. These variations will tend to disappear in
upcoming years. Foreseeably, endoscopist-directed sedation with propofol will be expanded upon implementation of the training recommendations put forth by the EU’s European Section and Board of Gastroenterology and Hepatology (9), and the *Programa de Formación en Endoscopia Digestiva Básica* proposed by the SEED for resident intern physicians (MIR) (10). It is highly likely that, as a result of specific training in propofol sedation, the present proportion of hospitals (54.2%) where endoscopists direct sedation will be enlarged.

The *delay* between endoscopy ordering and performance is a key management parameter. It is colloquially referred to as “waiting list”. The ECV shows large variations among hospitals, ranging from two to 15 months. Interestingly, delays cannot be satisfactorily controlled despite the fact that 95.8% of hospitals have an evening shift in addition to the morning one. In this regard, we must point out that endoscopy has a number of different indications where delay analyses should be individualized. To our knowledge, taking colonoscopy as an example, the following types may be considered: symptom-driven colonoscopy, colonoscopy for control and follow-up of prior lesions, colonoscopy for high suspicion of CRC, and complex colonoscopy for the treatment of previously diagnosed lesions. Pooling all these types together in one waiting list will obviously result in confusion, and is no doubt ill-advised in terms of clinical management.

A *CRC screening program* is implemented in 91.7% of respondent hospitals and 86.4% have special CRC screening schedules. *Hic et nunc*, at the time of writing this the CV has screened 100% of the population, according to data reported by the CRC Prevention Alliance in Spain (11). This benefit for CV citizens is not shared by the people residing in other autonomous communities, where the implementation of screening programs has been delayed or even lacks a specific chronogram, which shows their failure to meet the recommendations issued by the European Union in 2003 (12) and the ministerial decree issued by the Spanish Ministry of Health in 2014 (13). This inequality in the provision of a CRC prevention service is contrary to the third basic precept of Law: *suum cuique tribuere* (to give to each his own), and plays a role in the territorial inequity referred to early in the present editorial.
The development and evolution undergone by gastrointestinal endoscopy have been of such magnitude and celerity that implementation in hospitals has turned out to be vastly unequal. Scientific institutions must issue and update recommendations regarding the physical structure, functional flows, endowment, technological upgrading, and human resources of gastrointestinal endoscopy units. Then, legislative bodies should issue regulations bestowing legal value on them. Finally, the executive branch should enforce them and watch over their observance.

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