IBEAS: a pioneer study on patient safety in Latin America

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Every year, tens of millions of patients worldwide suffer injury or die as a result of unsafe health care. In various parts of the world, a concerted effort is being made to identify the main health-care risks, pinpoint the causes, and develop and implement effective solutions to these problems. Understanding the situation is the first step towards preventing risks and reducing the burden of disease associated with health-care incidents. The IBEAS study is the first large-scale study to be carried out in Latin America, to assess the extent of the issues that can occur in hospitals due to unsafe care. This important effort recognizes the complexity of the sector and highlights the commitment of its leaders to the health and well-being of their patients.

The hospitals that decided, in a coordinated manner, to collaborate in the IBEAS study have demonstrated their firm commitment to safer care and to the improvement of their health systems. The task undertaken in this project has been wide-ranging and significant. A collaborative model has been established in which 58 centres and research teams from Argentina, Colombia, Costa Rica, Mexico and Peru participated, under the leadership of their respective Ministries of Health, thereby enhancing the critical mass of professionals trained in patient safety, which is enormously important for the future of the sector in Latin America.

The technical guidance provided by the principal investigators, supported by the Quality Agency of the Spanish Ministry of Health, Social Policy and Equity, has helped to create synergies on both sides of the Atlantic in the area of patient safety, based on previous experiences in Spain. The collaboration fostered by the Pan American Health Organization and the World Health Organization offers a model for new international projects. The political, social and institutional momentum generated around the IBEAS study is significant and, we would like to think, unstoppable.

This document contains the main findings of the IBEAS study. It also presents some of the risks associated with harm, the prevention of which will contribute to improving patient safety. Its lessons and key messages are applicable beyond the borders of the participating countries and are therefore a model and a guide for other parts of the world.

Congratulations to all those who have contributed to this study.

Dr David Bates
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Every year, tens of millions of patients throughout the world suffer injuries or die as a result of unsafe medical care.

Despite the intention of health services to prevent or cure diseases, all too often health care itself causes harm to its users. Certain infections, injuries due to medical procedures, amputations of the wrong organ or limb, poisoning or even death resulting from erroneous dosages, are all classified as hospital-related harmful incidents or adverse events.

Such incidents lead to suffering, disability and often devastate lives, not to mention the considerable economic resources that are expended on protracted hospital stays and unnecessary care, and the loss of profit and credibility suffered by the health system itself.

Much of the current thinking about ways to avoid such incidents and improve patient safety comes from the most developed countries. We need to expand our horizons to include the situation in countries with emerging economies as a prerequisite for proposing solutions.

The Latin American Study of Adverse Events (IBEAS) is the first study on hospital-related harmful incidents to be carried out on a large scale in Latin America. The lack of previous studies in the Latin American context poses a difficult challenge, but at the same time highlights the importance of the IBEAS study as a first essential step towards improving patient safety.
Some reasons to think about patient safety

- It is estimated that 1 in 10 inpatients will experience a harmful incident during their stay in hospital. This statistic has been recorded in medium- and high-income countries, but no analogous statistic currently exists for countries with emerging economies, although it is thought that the extent of the problem in these countries could be even greater.

- According to estimates, every day 1.4 million people worldwide suffer from an infection acquired in a health-care setting.

- In some countries, 1 in 10 hospital admissions is due to adverse reactions to medication.

- Even more serious, around half of these harmful incidents could have been avoided if existing health-care standards had been applied. Sometimes small gestures, such as hand washing or systematically using a checklist, can help save many lives.

- Harmful incidents can be devastating for the patients affected: in addition to the physical and mental harm, injuries can result in temporary or permanent inability to work, and in extreme cases in death.

- In some countries, it has been calculated that the annual economic cost of harmful incidents runs into several billion US dollars; as well as causing patients to take time off work, the number of additional days spent in hospital is increased and significantly more resources are expended (more medication, more surgical interventions, more diagnostic tests and more treatment in general).

- For all the above reasons, the lack of patient safety is now considered a global public health issue and efforts should therefore focus on dealing with the problem.

- Every person and institution directly or indirectly responsible for ensuring patient safety (not just health workers, but also managers and policy-makers) are key to establishing a culture of safety.

- Properly informed patients can also help to improve their own safety.

The lack of safety in health care is currently thought of as a global public health problem.
The main objective of the IBEAS study was to assess the patient safety situation in a number of Latin American hospitals.

Accordingly, the objectives of the study were:

- To gain insights into the **magnitude** of the problem;
- To assess the **frequency**, **severity**, **timing** and **probable cause** of the identified harmful incidents;
- To assess how such incidents **could have been avoided**, and **identify their determinants**.

Although Latin American countries have certain common features, they are also characterized by an important socio-cultural diversity. To get a better idea of the situation, therefore, large-scale studies needed to be carried out in a number of countries. Research was therefore carried out in **58 hospitals (11 379 patients)** in the following **five countries**: Argentina, Colombia, Costa Rica, Mexico and Peru. **These five countries had the courage to take part** in the study knowing that they would expose the possible failings of their hospitals to general scrutiny.

But the most important benefit for the participating hospitals was that the experience enabled them to pioneer a culture of patient safety. As we were able to confirm, this culture came into being from the outset of the study and occurred mainly in the following two ways:

1. The study itself increased awareness of patient safety among the health professionals who participated in the study;
2. The mere fact of conducting research made it possible to pinpoint areas for improvement, thereby putting these hospitals on track for improved safety.
Main findings of the IBEAS study

What is the issue? What is the extent of the problem?

- On any given day, 10% of the patients admitted to the hospitals in the study had experienced some kind of harm due to health care. This was the finding of the prevalence study, (see “How was the IBEAS study conducted?”);
- This risk doubled when considering the entire duration of the patient’s hospital stay: 20% of inpatients experienced at least one harmful incident during their hospital stay. This was the finding of the incidence study, (see “How was the IBEAS study conducted?”).

On the day of the study, 1 in 10 inpatients were suffering from or were undergoing treatment for a hospital-related harmful incident.
What factors influenced the frequency of harmful incidents?

- The unit to which the patient was admitted (harmful incidents occurred most frequently in intensive care and surgical units, least frequently in clinical services);
- Duration of hospitalization (risk increased with each additional day);
- Co-occurrence of illnesses (the greater the number of illnesses or conditions, the greater the risk of a harmful incident);
- The presence of risk factors such as catheterization and other “invasive” procedures.

Which were the 10 most frequent types of harm associated with harmful incidents?

1. Pneumonia
2. Surgical wound infection
3. Pressure ulcers (owing to immobility)
4. Sepsis and septic shock
5. Injury requiring treatment in the intensive care unit
6. Phlebitis
7. Health impacts due to delayed diagnosis or misdiagnosis
8. Lesion of an organ due to a medical intervention or procedure
9. Haemorrhage or haematoma due to a medical intervention or procedure
10. Bacterial infection of the blood due to a device such as a catheter.

Figure 1.
What were the consequences?

More than half of harmful incidents could have been avoided.

**The patient’s physical condition:**

Of every 100 patients who experienced a harmful incident:

- **7 died** (2 as a direct result of the event and 5 as a result of the event in combination with other conditions)
- **17 were left totally disabled**
- **12 were left severely disabled** and
- **64 were mildly disabled or suffered no disability.**

**During additional days spent in hospital:**

- Of every 100 patients who experienced harmful incidents, 63 had to extend their hospital stay, 18 had to be readmitted and only 19 did not need to spend additional days in hospital.
- On average, harmful incidents extended the duration of hospitalization by more than 16 days per patient (with variations of between 13 and 19 days depending on the country).

**Could the harmful incidents have been avoided?**

- Of every 10 incidents associated with hospital-related harmful incidents, nearly six could have been avoided. The proportion of avoidable harmful incidents was higher in obstetric and other medical services.
What do we now know?

- The IBEAS study has enabled us, for the first time, to grasp the problem of patient safety and gain some insights into hospital-related harmful incidents in certain hospitals in Latin America;
- We now know that we are facing a very serious public health problem in health systems.

What’s next? What can we do?

In light of the seriousness of this problem, our objective must be to improve patient safety. To do this, we need to design and implement locally effective solutions to prevent harm. In order to design such solutions, we must gain a deeper understanding of the situation. In other words, we need to conduct research in order to better understand the problem, so that we can take action to improve patient safety.

Specifically, we need to:
1. Draw attention to the issue of unsafe health care and make public health stakeholders aware of the need to improve patient safety;
2. Design specific strategies to improve safety on the basis of the findings of the IBEAS study. Our findings have highlighted the areas where problems appear to be most frequent and where improvements could be made;
3. Pay special attention to the most vulnerable patients, such as those with more than one condition, infants aged 0-12 months and the elderly aged over 65;
4. Recommend health policies that promote patient safety;
5. Encourage a culture of patient safety among health professionals and managers;
6. Conduct more research to understand the situation and identify solutions to improve patient safety. Participation in this type of study automatically enhances the culture of safety (not only among researchers but also among other professionals).
How was the IBEAS study conducted?

The IBEAS study had two parts, a prevalence study and a retrospective incidence study.

- The **prevalence study** involved determining how many patients admitted to the participating hospitals experienced harmful incidents attributable to health care on a given day (Day 0).
- The **incidence study** was conducted using a sample of patients with the aim of confirming whether the prevalence study could replace the conventional incidence study used to date. Specifically, the study involved reviewing the case notes of a random sample of 10% of patients hospitalized on Day 0 in the participating hospitals. Case notes were scanned to ascertain whether, at some point during their hospitalization (or previously), inpatients had experienced a harmful incident, regardless of whether the consequences of the incident were still present on Day 0. Patients continued to be monitored until discharge.

Incidence studies require **greater human and economic effort** than prevalence studies.

In both studies, researchers used two tools to detect harmful incidents, namely a **Screening Guide** and a **Modular Questionnaire** to identify harmful incidents using the medical record review methodology.

- First, the screening guide was applied to the patients in the study. This served as an alert and tracking system for possible incidents.
- If a patient screened positive for one or more of the 19 alert criteria in the screening guide, the case was studied using the case history. An in-depth study of case histories enabled researchers to conclude whether a patient did in fact present with the consequences of a harmful incident (true positive) and if so, to classify the type of event, its severity, any associated factors, and whether or not the incident could have been avoided, etc.

As was to be **expected**, the incidence study generally detected proportionally more incidents than the prevalence study, since it examined the entire duration of hospitalization and could detect more deaths and short-term lesions. However, incidence studies are more laborious and costly than prevalence studies.
Basic information on the samples studied

- The study was carried out between 2007 and 2009
- In five countries: Argentina, Colombia, Costa Rica, Mexico and Peru
- In 58 hospitals
- 11,379 patients were studied in the prevalence study (the total number of patients admitted on the day of the study, Day 0)
- 1,088 patients were studied in the incidence study (random sample of 10% of patients admitted on the day of the prevalence study, Day 0).

Acknowledgments

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