

# Global Clinical Journal

*Connecting and developing our clinician community to better serve people*



*Unidos de Corazón, Oliva Allamand L., 2010  
Clínica Santa María, Santiago, Chile*

*Volume 1, November 2019 - English Edition*

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### **On the Cover**

The painting “Unidos de Corazón” (“United by Heart”) was created by Oliva Allamand L., together with 100 children who underwent heart surgery at Clínica Santa María in Santiago, Chile. The painting was dedicated on July 31, 2010 and hangs in the waiting area of the facility’s Pediatric Cardiovascular Intensive Care Unit.

# A message from the Chief Medical Officer

I remember, as a young and newly minted physician, taking the Hippocratic Oath and reflecting on the enormity of the task that lay before me. This moment was the culmination of my childhood dream to become a physician. While my professional journey has taken many paths, including rural medicine in Nigeria, Clinical Cardiology in the United Kingdom, Internal and Geriatric Medicine in the United States, and now serving as Chief Medical Officer for a global health care organization, the Hippocratic Oath has remained a constant throughout.

Physicians taking the modern Hippocratic oath commit to the following, “...for the benefit of the sick according to my ability and judgment, I will keep them from harm and injustice.” All professionals in health care — clinical and non-clinical — affirm this fundamental principle in some way or another through their daily work. The principle applies to health care teams, systems and organizations — and so it applies to all of us.

Our United Culture values align closely with this foundational principle and mandate that the care we deliver, in the words of Hippocrates, “does no harm” to those we serve. Clinical quality and patient safety is fundamental to our mission, making it a fitting choice as the theme of the first edition of the Global Clinical Journal.

Our 54 hospitals, 225 clinics and outpatient centers, and nearly 36,000 clinicians are all involved in delivering care to the people we serve every single day. It is critical that we provide optimal quality and safe care for the more than 7 million individuals we are privileged to serve. We earn the right to serve our communities by *first, doing no harm*.

Our quality and patient safety work is guided by three fundamental pillars:

- **A Patient-Centered Vision** – we are committed to providing a health care ecosystem around each person that guarantees optimal quality and safe care, wherever they may encounter our care delivery services, along the entire continuum of care.
- **Trust, Respect and Inclusion** – we will foster an environment of trust, respect and inclusion for all stakeholders, including team members and the people we serve.
- **A Just Culture**, or a No-Blame Environment – we hold ourselves accountable by coming together as a team to identify and fix gaps in system design, patient safety and human behavior.

Quality and patient safety is here to stay — we simply cannot do our work without it.

The quality and patient safety content in this edition reflects some of our best clinical learnings from across our business. The content is intended for both clinical and non-clinical audiences. After reading it, I hope you feel inspired and ready to help bring the three quality and patient safety pillars to life.

Thank you for your continued partnership and engagement as we work together *to help people live healthier lives and to help make the health care system work better for everyone*.



**Margaret-Mary G. Wilson, M.D., MBA, MRCP, FNMCP**

Chief Medical Officer & Senior Vice President

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### Letters to the Editor:

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# Safe Electronic Prescribing of Medications at Colmédica Medical Centers, Colombia

## Introduction

The Colmédica Medicina Prepagada (Colmédica Prepaid Medicine) business developed a system of automated alerts in electronic medical records that warns doctors about prescription errors and the risks created by the use of certain prescribed medications in particular patient conditions.

## The Need

Globally, medication prescription errors are among the main causes of adverse events.<sup>1</sup> The alert system aims to improve the safety of care by decreasing the occurrence of medication-related errors and adverse events.

## The Program

The following alerts were developed to automatically appear when a physician is updating a patient's medical records:

- **Maximum dose:** indicates if the prescribed dose exceeds the maximum recommended dose.
- **Drug-drug:** indicates that interactions between prescribed drugs may compromise the effectiveness or safety of the treatment.
- **Drug-age:** indicates the risks that prescribed drugs may pose in patients under 18 and the elderly.
- **Drug-pregnancy:** indicates whether or not the prescribed drugs create risks during pregnancy.
- **Drug-condition:** indicates the risks that the prescribed drugs may cause due to a patient's medical history.
- **Allergy history:** indicates whether the patient has a history of a prescribed medication allergy or if there is a risk of cross-hypersensitivity.
- **Duplication:** indicates if the prescribed medications have the same active ingredient or active ingredients with very similar actions.

The procedure for developing the alerts consisted of the following critical steps:

- Selection of medications to include in the alert system, taking into account prescription frequency and therapeutic margin.
- Definition of the parameters for each alert.
- Implementation of the necessary changes in the electronic medical record.

- Input of the necessary information from reference databases into the parametric table in order to generate alerts.
- Pre-implementation testing.
- Adjustments according to test results.
- Issuance of an informational memo to medical staff.
- Launch.
- Continuous evaluation of and feedback from the results.

The development team comprised a pharmacist, epidemiologist, pharmacologist, medical auditor, medical quality manager and systems engineers.

The investment for development of the alert system — including fees, personnel and information systems — was \$223,653 between 2014 and 2018.

## Results

Since its implementation, the system has already yielded a consistent set of trends, categorized by alert type as follows:

**Maximum dose:** The drugs most commonly involved in the maximum dose alert were esomeprazole and desloratidine, which accounted for 55% of these alerts. Data entry errors accounted for 7% of alerts.

**Drug-age:** After the launch of this alert in January 2018, high-risk prescriptions for minors under 18 years old were statistically reduced. The prescription of muscle relaxants and non-steroidal anti-inflammatory drugs (NSAIDs) for people over 60 (see Figures 1 and 2) was also reduced.

**Pregnancy:** After the launch of this alert in 2017, no prescriptions were generated for drugs registered in the parametric table with Food and Drug Administration (FDA) category D or X.

**Drug-condition:** The launch of this alert in August 2018 reduced the percentage of prescriptions that may create risks due to medical history, from a high of 24% to a low of just over 2% (see Figure 3).

## Lessons Learned

- Review all dose alerts during consultations, especially maximum dose alerts that may occur due to data entry errors and improper selection of dosage.
- Streamline the feedback process to healthcare providers and prescribers.
- Create a process for updating alerts when new evidence or needs arise, which involves incorporating a greater number of medications and modifying current alerts as necessary.
- Design a strategy to optimize data collection to obtain a more complete picture of the project's impact, without overloading the medical record system.

## Conclusion

The alert system has made it possible to detect causes of overdosing and reduce the prescribing of medications that create risks in children, pregnant women, the elderly and patients with comorbidities. Improved data collection will help better determine the full impact of the program. Finally, because the system has been independently developed, it can be easily adapted to the future needs of the organization and patient population.

*This article has been translated from the original submission in Spanish.*

<sup>1</sup>Medication Without Harm - Global Patient Safety Challenge on Medication Safety. Geneva: World Health Organization, 2017. Available at: <https://apps.who.int/iris/bitstream/handle/10665/255263/WHO-HIS-SDS-2017.6-eng>.

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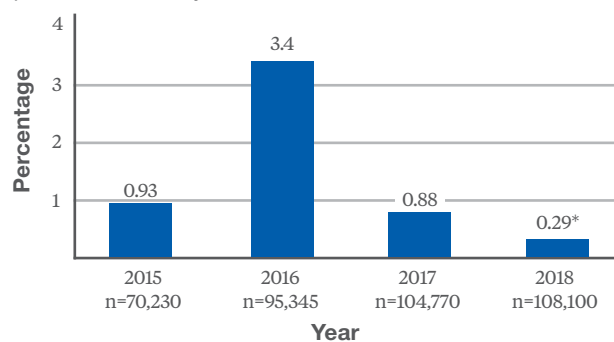
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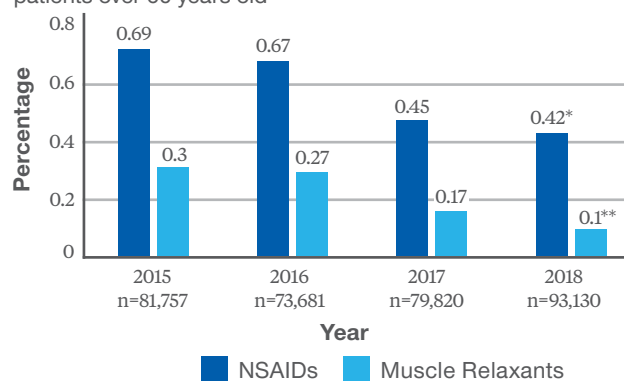
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**Figure 1.** Percentage of prescriptions included in the drug-age subsystem in relation to the total number of consultations in patients under 18 years old



\* $p=0.003$  vs 2015, 2016 and 2017

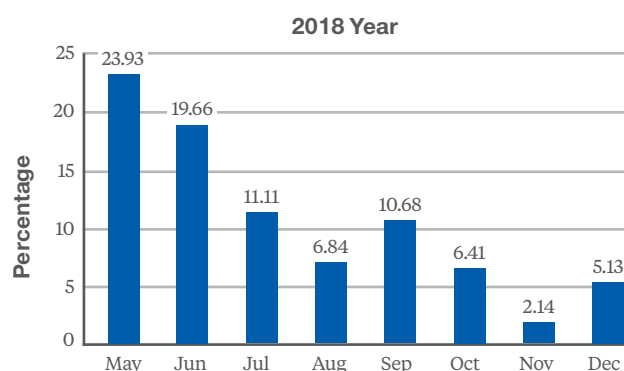
**Figure 2.** Percentage of prescriptions of NSAIDs and muscle relaxants in relation to the total number of consultations in patients over 60 years old



\* $p=0.003$  vs 2015 and 2016

\*\* $p=0.003$  vs 2015, 2016 and 2017

**Figure 3.** Percentage of prescriptions that create risks according to medical history



# Use of Information Technology to Improve Communication and Safety at Hospital de Cascais, Lusíadas Health System, Portugal

## Introduction

In December 2017, Hospital de Cascais, part of Lusíadas Saúde, became the first hospital in Portugal to achieve Electronic Medical Record Adoption Model Stage 7 certification (the highest level possible) by the Healthcare Information and Management Systems Society (HIMSS). This achievement was due to the hospital's adoption of electronic medical records (EMRs) and other technology to improve outcomes and bring patients and clinicians together. Two additional system hospitals are at Stage 6 certification, and Lusíadas Saúde plans to expand certification projects to the remaining network hospitals, adding value for both patients and clinicians.

## The Need

Technology can sometimes create distance between health care providers and their patients. This work at Hospital de Cascais shows that technology — when developed with clinician and patient involvement — can bring them together and enable better, safer care.

## The High-Care Project

Hospital de Cascais is a public-private partnership — a public hospital with private management of the clinical operation. This unique structure, a controlled scope of care in certain specialties, and an enthusiastic and empowered team provided the ideal conditions to embark on the HIMSS certification journey.

The hospital's technology implementation journey began when the team identified inefficiencies and gaps in nursing processes, issues that were driving both employee and patient dissatisfaction. Although some technology existed, it did not fulfill the needs of team members or patients.

With a multidisciplinary team led by Hospital de Cascais' Chief Nursing Informatics Officer (CNIO), the entire nursing process was reviewed and reworked. New technology was introduced for the benefit of patients and with engagement of the full clinical team. This project, called the "High-Care Project" (high-tech + high-touch) embodies the spirit the Lusíadas Saúde team brings to everything they do to improve inpatient care.

## Elements of the High-Care Project include:

1. Bedside tools that enable nurses to do their rounds and take notes in close proximity to the patient.
2. Live monitoring of vital signs and mechanical ventilator settings in the Intensive Care Unit that transmit in real time to the patient's electronic medical records.
3. Real-time tracking of the preparation, delivery and administration of medications and blood transfusions.
4. Use of the Manchester Triage System and a new clinical decision support system by the hip surgery team.

## Results

The closed loops assisted by these uses of technology support the "five rights" for the safe administering of medication, blood and breast milk: right patient, right drug, right time, right dose and right route. The collection, preparation and administration of these components are fully trackable and measurable, allowing the team to change behaviors and improve these processes and circuits. Closed loops not only mitigate risk, reduce errors and improve quality, but also — contrary to the norm — put health professionals increasingly closer to patients. After implementation of this bedside technology, the patient satisfaction Net Promoter Score increased from 37 to 63.

Hospital de Cascais' fast-track hip surgery program is another example of how the hospital has used technology to facilitate communication, improve outcomes and help clinicians do their work. Support systems for decision-making are integrated with the Manchester Triage System, which facilitates identification of these patients, accelerating the overall flow of patients through the hospital. Messages triggered by the EMRs to the relevant care teams prompt timely visits by the anesthesia and rehabilitation teams. This program has reduced the door-to-surgery time to an impressive 36 hours. It has also reduced the average length of stay by four days and, consequently, in-hospital mortality rates have declined to 2.2% for these patients.



## Lessons Learned

Clinical engagement and a multidisciplinary mentality are key. Involving clinicians in the projects from the start makes all the difference. Not only do they understand the care processes best, including what should be improved, but their involvement also gives them a true sense of ownership of the technology changes. Having strong, clear and resilient leadership and a willingness to invest was also crucial for change. The Hospital de Cascais team was fortunate to have this alignment, along with board member participation, to accelerate decision-making and empower the teams.

The trial and error process was an obstacle, but it also caused the team to rethink decisions that were not working. The team also learned it is important to celebrate the small successes along the way. This strengthens team spirit and gives the team momentum to carry on.

## Conclusion

Technology, when introduced with empowered clinician engagement, offers benefits to patients, including fewer errors and improved health outcomes. There is surely more to learn, but we already have a collection of case studies in several areas of the hospital (financial, efficiency, clinical, etc.) that clearly show the “before and after” gains. Technology- and data-driven hospitals will be able to become highly reliable organizations faster and more consistently than those who are not.

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*Technology can sometimes create distance between health care providers and their patients. This work at Hospital de Cascais shows that technology — when developed with clinician and patient involvement — can bring them together and **enable better, safer care.***

# Continuous Care Units: Preventing Unnecessary Hospitalizations through Modified Infrastructure, Brazil

## Introduction

The synergy between volume-based financial incentives, easy access to Emergency Room (ER) services, and a lack of integration of emergency room services with the outpatient network contributes to an increase in low-clinical complexity, short-stay hospitalizations.<sup>1,2,3</sup>

UnitedHealth Group Brasil's Amil Clinical Management team analyzed 900,000 inpatient admissions at 100 accredited network hospitals over the past three years. More than 50% of patients were admitted from the ER with low-complexity conditions and had a length of stay of less than 48 hours. The study showed that the majority of these cases did not require inpatient admission and would have benefited from emergency department care management that was integrated with outpatient facilities.

The creation of the “Unidade de Cuidados Contínuo” (UCC), or Continuous Care Unit, stemmed from a need to prevent unnecessary hospitalizations for this patient profile and offer post-ER discharge services that provide for continuity of outpatient services. The UCC concept incorporates elements of the United States observation unit model of care.

## UCC implementation

UCCs are units that are usually situated in the hospital Emergency Department that provide well-defined, specific and clinically appropriate services for low-complexity conditions. This includes treatment, diagnostics and continued short-term monitoring. Response to UCC treatment determines if the patient will be subsequently admitted or discharged. There is no set period of time within which a decision must be made relative to a patient being admitted or discharged. On average, these patients do not usually remain at the unit for more than 24 hours.

The first UCCs were installed in hospitals that had strong clinical governance, high levels of physician engagement and highly proficient ER physician and nurse teams. These criteria were considered critical to mitigate the risk of compromising clinical quality and patient safety. Clinical conditions eligible for the UCC model were selected based on complexity, expertise of hospitals and physician specialty.

## Key performance indicators were:

- Number of patients admitted who met UCC criteria but were not admitted to the UCC
- Length of stay in UCCs (in hours)
- Number of admissions avoided
- UCC ER conversion rate (% of patients admitted to the hospital from the ER and UCC)

All patients discharged from UCCs are monitored for one month to identify return to ER following discharge.

## Conditions Eligible for UCC Level of Care:

1. Abdominal pain
2. Acute gastroenteritis
3. Anemia
4. Asthma
5. Atrial fibrillation
6. Cellulitis (skin infections)
7. Dehydration (includes hyponatremia and hypokalemia)
8. Exogenous intoxication
9. Headache
10. High blood pressure
11. Low-risk congestive heart failure
12. Low-risk syncope
13. Lower back pain
14. Lower gastrointestinal bleed
15. Nausea/vomiting
16. Pneumonia
17. Renal colic
18. Seizures
19. Sickle cell anemia
20. Thoracic pain
21. Urinary tract infection

## Results

From September 2018 to July 2019, 24 UCCs were established, and the initial results strongly indicate their potential to contribute to health system improvement in Brazil. Since the opening of our first UCC, the number of patients with the appropriate criteria that are admitted to the model on a monthly basis has increased from 62 to 3,078.

In this same period, the number of avoided hospitalizations went from 13 cases to 920 cases (Table 1). And, the length of stay in the UCC decreased from more than 16 hours to 13 hours. This demonstrates the potential for rapid maturity and scalability in the short term.

In Hospital Luz and Hospital Paulistano where the first UCCs were installed, emergency room conversion rates fell approximately 1.5% in both locations when comparing fourth quarter 2017 to fourth quarter 2018 (Hospital de Luz, from 7.98% to 6.51%, and Hospital Paulistano, from 10.95% to 9.46%) (Table 2). In addition, all patients discharged from the UCCs were observed for one month, and no adverse events have been reported so far.

## Discussion

Inappropriate inpatient admissions adversely impact patient safety, increase the risk of hospital-acquired complications and drive up the total cost of care. The UCC model facilitates provision of evidence-based and cost-effective care for low-complexity conditions and avoids the inefficiencies driven by inappropriate hospital admissions.

Patients with a UCC profile have a team at their disposal, fully dedicated to the fast and efficient resolution of their clinical condition. Scheduling of post-discharge outpatient consultations guarantees the continuity of care.

The UCC model of care facilitates efficient use of hospital resources, helps patients easily move through the hospital and allows hospital inpatient service teams to focus their attention on patients who truly need hospital care.

## Conclusion

UCC is an efficient and cost-effective care model for low-complexity conditions that generates value for patients, providers and payers. Our short-term results indicate that this model is effective in reducing avoidable admissions to the hospital from the ER. Robust clinical quality and patient safety oversight is critical to attain optimal clinical outcomes.

*This article has been translated from the original submission in Portuguese.*

<sup>1</sup>Kenner, P.I., Wee, C.C.H. & Weber, D.G. World J Surg (2019) 43: 2186. <https://doi.org/10.1007/s00268-019-05026-7>

<sup>2</sup>Lin MP, Baker O, Richardson LD, Schuur JD. Trends in Emergency Department Visits and Admission Rates Among US Acute Care Hospitals. JAMA Intern Med. 2018;178(12):1708–1710. doi:10.1001/jamainternmed.2018.4725

<sup>3</sup>The hospital observation care problem. Perspectives and solutions from the Society of Hospital Medicine. Society of Hospital Medicine, Public Policy Committee, September 2017. <https://www.hospitalmedicine.org/globalassets/policy-and-advocacy/advocacy-pdf/shms-observation-white-paper-2017>

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**Table 1**

	2018				2019						
	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.
UCC entries	62	218	522	934	1,096	1,156	1,258	1,396	2,420	2,616	3,078
Hospitalizations avoided	13	78	188	325	365	362	389	435	735	834	920
UCC length of stay (hh:mm)	16:45	9:21	14:02	15:15	13:19	12:21	12:30	12:19	13:02	12:53	13:00

**Table 2**

	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Emergency Conversion Rates - Luz	8.63%	8.58%	8.44%	7.98%	7.81%	7.50%	7.95%	6.51%
Emergency Conversion Rates - Paulistano	11.43%	11.30%	10.85%	10.95%	11.50%	11.08%	12.25%	9.46%

↓  
UCC Implementation

# Implementation of Evidence-Based Clinical Care Management Guidelines in Empresas Banmédica, Chile

## Introduction

In November 2018, Isapre Banmédica, UnitedHealthcare Global's private health insurance company in Chile, implemented an evidence-based, inpatient clinical review model that uses care guidelines from MCG in the clinical care management of members admitted to acute care hospitals in Chile. The guidelines provide evidence-based pathways and planning tools that span the continuum of care so that evidence-based care can be delivered at the right time, in the right place and in the right setting. Evidence-based care guidelines also support efficient clinical decision-making, limit inappropriate admissions, facilitate optimal clinical outcomes and enable efficient transitions between settings.<sup>1</sup>

## The Program

The concepts of value creation, efficiency in health care, total cost of care reduction and continuous quality improvement are the fundamental pillars of our evidence-based clinical model. We leveraged MCG care guidelines as a critical resource because it is an evidence-based solution that has proven effective globally in guiding clinical care management, and our organization has significant experience with the use of these guidelines.

Isapre Banmédica hospital-based nursing teams were trained to review, capture and document information from inpatient admission medical records on a daily basis. This information helps determine provider adherence to care guidelines for three main indicators: appropriateness of admits, length of stay and level of care, during each hospitalization.

The information obtained by the nurse reviewers is analyzed in real time by Isapre Banmédica physician reviewers and shared with each hospital to facilitate concurrent care management. The administration of each participating hospital receives a list of cases with documentation of the respective admitting physician's adherence to, or variance from, the recommendations of the clinical guidelines. This allows each provider's team to intervene, where appropriate, and help correct practice patterns and behaviors that do not represent evidence-based care. In turn, with this aggregated information, each hospital can retrospectively define and implement care policies, patient flows, and clinical or administrative processes that can provide the best and most timely solutions to health challenges.

We are currently applying the guidelines in all five Banmédica-owned acute care hospitals and three hospitals within our contracted network. This scope reflects 52% of our total bed days (60% of our total spend). We plan to include three additional contracted hospitals within the next quarter. This will expand our review scope to cover 63% of bed days (77% of total spend) by the end of the program's first year.

Using these evidence-based care guidelines, we have also established improved communication channels — both within Isapre Banmédica and between the Isapre and providers, allowing everyone to have a shared focus: our members.

## Results

Since the beginning of this implementation process, we have reviewed 14,551 admissions, representing 65,013 bed days (Table 1).

We have obtained concrete and measurable gains in efficiency and quality. For the three hospitals where we have conducted concurrent reviews with MCG and shared data for at least six months, we can report the following results (Table 2):

- Average admission appropriateness has increased by 11 percentage points, from 74% to 85%, with the most dramatic improvement being 29 percentage points. We have seen improvement both in admissions from the emergency room (12 points), and in planned admissions (11 points).
- Level of care (LOC) appropriateness has increased by 26 percentage points, from 64% to 90%, with the most dramatic improvement being 29 percentage points.
- The difference between actual length of stay (LOS) and evidence-based expected length of stay has been reduced by 0.56 days, from 1.92 days to 1.36 days.

We have seen the following changes at an insured population level (comparing dates of service between January and April 2019 to the same period in 2018), and given the lead indicators above, the guidelines' implementation has contributed to the following results (Table 3):

- Bed days per thousand has decreased 6.1%, from 394 to 372.
- Admits per thousand has decreased 3.5%, from 106 to 103.

We are extremely encouraged by these population-level results given that we were not at full implementation during this period. Implementation of our evidence-based clinical model has also been a catalyst for solutions to problems that we had not previously been aware of, such as the necessity for new levels of inpatient and outpatient care, the revision of plans for hospital bed expansion and the review of benefits coverage.

## Conclusion

In summary, the implementation of an evidence-based clinical care management review model using MCG care guidelines in Isapre Banmédica in Chile has led to a tangible improvement in clinical care management quality and efficiency for our members. Evidence-based clinical guidelines have proven to be a valuable and practical tool for promoting shared understanding between the different care team members, based on a common language that places

the member at the center of our clinical care management and delivery model.

*This article has been translated from the original submission in Spanish.*

Industry-Leading Evidence-Based Care Guidelines, MCG, 2019: <https://www.mcg.com/care-guidelines/care-guidelines/>

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*Project and KPI Team Members:* Felipe Salazar, Rodrigo Ramirez, Eduardo Nuñez, Hedito Saez

**Table 1: Admissions Reviewed by Facility and Total Bed Days Representation**

	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Total Admissions	Total Bed Days
Hospital 1					23	68	70	161	635
Hospital 2					73	112	122	307	1,174
Hospital 3	859	1,371	987	1,208	1,151	1,156	1,147	7,879	39,617
Hospital 4				73	115	102	128	418	1,416
Hospital 5				43	562	533	462	1,600	6,381
Hospital 6						18	34	52	256
Hospital 7		286	241	445	450	500	581	2,503	9,716
Hospital 8		282	259	256	279	247	308	1,631	5,818
<b>TOTAL</b>	<b>859</b>	<b>1,939</b>	<b>1,487</b>	<b>2,025</b>	<b>2,653</b>	<b>2,736</b>	<b>2,852</b>	<b>14,551</b>	<b>65,013</b>

**Table 2: Main KPI Changes**

	Admission appropriateness change (% points)	Admission appropriateness change (ER) (% points)	Admission appropriateness change (planned) (% points)	LOC appropriateness change (% points)	Difference between LOS and Expected LOS change (days)
Hospital 3	9 (79 to 88)	12 (83 to 95)	4 (48 to 52)	29 (63 to 92)	0.53 (2.22 to 1.69)
Hospital 7	29 (51 to 80)	13 (77 to 90)	31 (22 to 53)	15 (67 to 82)	0.15 (1.34 to 1.19)
Hospital 8	12 (72 to 84)	17 (78 to 95)	19 (31 to 50)	23 (71 to 94)	0.58 (1.06 to 0.48)
<b>Weighted Average</b>	<b>11 (74 to 85)</b>	<b>12 (82 to 94)</b>	<b>11 (41 to 52)</b>	<b>26 (64 to 90)</b>	<b>0.56 (1.92 to 1.36)</b>

**Table 3: Utilization Metrics for Entire Membership**

Represents utilization with date of service between January 1 and April 30 and claims adjudication date between January 1 and June 30.

	2018	2019	Change
Members	3,370,120	3,388,255	
Month			
Bed Days	110,720	104,956	
Admissions	29,909	29,041	
Bed Days/K	394	372	<b>-6.1%</b>
Admits/K	106	103	<b>-3.5%</b>

# Solving for Quality: Brief Reports

## Involving Patients in a Culture of Safety: The Importance of Chronic High-Risk Medications

**Problem:** The use of chronic high-risk medications (CHRM) presents a treatment risk for hospitalized patients. The nursing team at Clínica San Felipe in Lima, Peru identified that some patients admitted to the hospital do not consider it relevant to report their use of chronic high-risk medications to their hospital physicians.

**Program:** The hospital Quality and Patient Safety team worked with nursing teams to develop a CHRM reporting tool, encouraging patients to report the use of CHRM (anticoagulants, NSAIDs, anti-diabetic medications, chemotherapy, biological treatment, antiplatelet medications, corticosteroids and combination therapy) and to increase the awareness of the risks involved. In our institution, patients wear a white bracelet with a red button if they have allergies. Today, they also wear a green button on the bracelet to notify staff of CHRM use.

**Results:** The team administered a Net Promoter Score (NPS) survey to patients to confirm their acceptance of this intervention. In the sample, 36% of patients used high-risk medication, and 64% did not. The global NPS of 66.6% (CHRM 73% and no CHRM 63%) shows that patients and their family members accept this tool, which is now used with all hospitalized patients.

**Team:** Marcela Argumedo, M.D., Quality and Information Analyst, Clínica San Felipe, margumedo@clinicasanfelipe.com; Ernesto Aspillaga, M.D., MBA, MS, CPE, Chief Medical Officer, Clínica San Felipe; Nelida Bedon, R.N., Intensive Care Chief Nurse, Clínica San Felipe; Julia Boza, R.N., Adult Inpatient Chief Nurse, Clínica San Felipe; Sheyla Lu, R.N., Pediatric Inpatient Chief Nurse, Clínica San Felipe; Betsy Maza, M.D., MS, Risk and Quality Assurance Analyst, Clínica San Felipe; Vilma Rodriguez, R.N., Chief Nurse, Clínica San Felipe; Rommy Palma, R.N., ER Chief Nurse, Clínica San Felipe; Paula Ponce de Leon, M.D., MBA, CHCQM, BSG, Chief Quality and Innovation Officer, Clínica San Felipe.

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*The global NPS of 66.6% (CHRM 73% and no CHRM 63%) shows that patients and their family members accept this tool, **which is now used with all hospitalized patients.***

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## Antimicrobial Stewardship Within Hospitals

**Problem:** Millions of people around the world are infected by bacteria that have become resistant to antibiotics and other antimicrobial treatment.<sup>1,2</sup> Antimicrobials are essential for prevention and treatment of infectious diseases, including those associated with chemotherapy and transplants.

**Program:** A collaborative, multi-disciplinary program was implemented in Clínica del Country and Clínica La Colina, Bogota, Colombia. The major objective of this program is to support appropriate use of antimicrobials, reduce antimicrobial-related adverse events, control resistance and decrease total cost of care. Disciplines engaged in the program included Infectious Disease, Laboratory Services, Pharmacy, Quality Control, Education, Information Technology and Clinical care providers.

### Elements in program:

- Telephonic preauthorization model
- Infectious diseases evaluation by request, active search and daily microbiological report
- Standardization of algorithms and clinical practice guidelines
- Informative tips
- Quarterly analysis of local epidemiology
- Alerts in electronic medical record
- Automated microbiology, multiple-template polymerase chain reaction, rapid tests, supervised antibiograms, vancomycin levels

### Indicators:

- **Defined Daily Dose (DDD) and Days of Therapy (DOT):** DDD is a globally recognized measure of standard dose, important for the oversight of the appropriate use of antimicrobials according to local epidemiology. The business has used this tool since 2014.
- **Indicators of health care-associated infections:**
  - The rate of ventilator-associated pneumonia for 2018 was 2.26 cases/1,000 days of mechanical ventilation. There have been no further cases since November 2018, a period of 280 days.
  - Rates of central line-associated bloodstream infections have decreased, from 1.19 in 2018 to an accumulated rate of 0.42 in July 2019, with the last case occurring in March 2019.
- **Hand hygiene strategy:** Hand hygiene strategy is a top priority. The cumulative adherence rate has increased from 62.6% in 2018 to 73.1% as of August 2019.

**Team:** Yazmin Rodríguez, M.D., Chief of Infectious Diseases Department, Clínica del Country and Clínica La Colina, Pediatric Infectious Disease Specialist, yazmin.rodriguez@clinicadelcountry.com; Santiago López, M.D., Chief Medical Officer, Clínica del Country, Adult Infectious Disease Specialist; Javier Garzón, M.D., Adult Infectious Disease Specialist, Clínica del Country and Clínica La Colina; Juan Bravo, M.D., Resident in Training, Infection Diseases, Clínica del Country; Infectious Diseases and Epidemiology Board, Clínica del Country and Clínica La Colina.

*This article has been translated from the original submission in Spanish.*

<sup>1</sup>Antimicrobial Resistance. World Health Organization, 2018. Available at: <https://www.who.int/en/news-room/fact-sheets/detail/antimicrobial-resistance>.

<sup>2</sup>Antibiotic/Antimicrobial Resistance. Centers for Disease Control and Prevention, 2018. Available at: <https://www.cdc.gov/drugresistance/index.html>

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*The major objective of this program is to support appropriate use of antimicrobials, reduce antimicrobial-related adverse events, **control resistance and decrease total cost of care.***

# Solving for Quality: Brief Reports

## Preventing Hospital-Acquired Infections through Modified Infrastructure Maintenance Protocols

**Problem:** Prevention strategies for reducing the incidence of infections acquired at Clínica San Felipe in Lima, Peru, were focused solely on the intervention of medical and nursing teams, and did not include the non-clinical hospital operations team. The hospital maintenance team and the Control y Vigilancia de Infecciones committee (Infections Oversight and Control Committee, or CIVI) worked independently of one another, with no common knowledge of the clinical and health impacts that control hospital maintenance activities.

**Program:** Maintenance professionals and the CIVI are now actively engaged with each other, using the Infection Control Risk Assessment (ICRA) process as a common language.<sup>1</sup> The ICRA system classifies the risk of infection based on two variables: the level of activity to be performed (ranging from non-dust-producing tasks to demolitions) and the location where the activity will take place (the lowest risk group is administration and the highest risk group is the surgical or sterilization center). The classification runs from ICRA 1 to ICRA 4. The higher the ICRA, the wider the scope of preventative measures necessary.

**Results:** In four months, the CIVI and the maintenance team completed four ICRA 2s and one ICRA 3. The non-clinical team was trained on the risk of infections in immunocompromised individuals. Following training, the maintenance team increased the frequency of their maintenance tasks adopting infection prevention measures in accordance with ICRA evaluation results, and mandated the use of anti-fungal paint during renovations. Although it is difficult to establish a direct link between these improvements and hospital infections, there has since been a reduction in these infections: there has been a 0% infection rate in any patient or worker in the areas with the modified infrastructure maintenance protocol.

### Team:

*Maintenance:* Belen Rodriguez, Ar, Architect; Carlos Rojas, Ar, Architect.

*CIVI Committee:* Paula Ponce de Leon, M.D., MBA, CHCQM, BSG; Chief Quality and Innovation Officer, Clínica San Felipe, ppoceleon@clinicasanfelipe.com; Marcela Argumedo, M.D., Quality and Information Analyst; Ernesto Aspillaga, M.D., MBA, MS, CPE; Chief Medical Officer, Clínica San Felipe; Nelida Bedon, R.N., Intensive Care Chief Nurse; Juan Carlos Gomez de La Torre, M.D., Chief Medical Officer, ROE Laboratory; Manuel Contardo, M.D., Intensive Care Chief Physician; Martin Montes, M.D., Infectious Disease Specialist.

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***There has been a 0% infection rate in any patient or worker in the areas with the modified infrastructure maintenance protocol.***

<sup>1</sup>Hospital Epidemiology and Infection Control in Acute-Care Settings. Emily R. M. Sydnor, Trish M. Perl. Clinical Microbiology Reviews Jan 2011, 24 (1) 141-173; DOI: 10.1128/CMR.00027-10

*This article has been translated from the original submission in Spanish.*



## Assessing Quality of “Care in Motion”

**Problem:** Transporting critically injured or ill patients poses unique risks that are even higher during air medical transport. Changes in cabin pressurization and oxygenation require specific expertise from the medical crew. While accepted standards and national regulations are readily available for hospital and ambulatory care, there is often less oversight of “Care in Motion” — or care delivered while the patient is being transported to or between care delivery facilities.<sup>1,2</sup>

**Program:** UnitedHealthcare Global’s International Quality and Patient Safety Work Group created an Essential Standards team focused on aligning clinical quality and patient safety standards across geographies. The team developed a robust tool for UnitedHealthcare Global businesses to identify areas for improvement related to ground and aero-medical transportation — whether within our own operations or with vendors. The tool’s checklist of 126 criteria spans a wide range of categories that include infection control processes, patient monitoring requirements and flight crew time management measures to help prevent fatigue.

**Promising Indicators:** In February 2019, the Care in Motion Essential Standards tool was used to conduct a series of on-site assessments for air and ground medical transport in Peru, which identified several opportunities for improvement that will benefit the local population, as well as UnitedHealthcare Global customers who travel to Peru. The tool will next be used to assess the organization’s HELP ground transportation in Chile.

**Team:** Pascaline Wolfermann, M.A., Director of Healthcare Intelligence, UnitedHealthcare Global Solutions, pascaline.wolfermann@uhcglobal.com; Luis Ramírez, M.D., Anesthesiology, Director of Quality and Safety, SANNA Peru, luis.ramirez@sanna.pe; Deb Doyle, R.N., Director of Clinical Operations Quality, UnitedHealthcare Global, deb.doyle@uhc.com.

<sup>1</sup>Knight PH, Maheshwari N, Hussain J, et al. Complications during intrahospital transport of critically ill patients: Focus on risk identification and prevention. *Int J Crit Illn Inj Sci.* 2015;5(4):256–264. doi:10.4103/2229-5151.170840

<sup>2</sup>Eiding H, Kongsgaard UE, Braarud AC. Interhospital transport of critically ill patients: experiences and challenges, a qualitative study. *Scand J Trauma Resusc Emerg Med.* 2019;27(1):27. Published 2019 Mar 4. doi:10.1186/s13049-019-0604-8

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*The team developed a robust tool for UnitedHealthcare Global businesses to **identify areas for improvement related to ground and aero-medical transportation.***

## Select Recent Publications

The following is a select listing of work by UnitedHealthcare Global clinicians published in peer-reviewed journals:

[“Aortic Valve Wisp Lesion: A Symptomatic Multifocal Papillary Fibroelastoma.”](#) Abecasis J., Gouveia R., Ribeiros R. Revista Española de Cardiología, (Engl Ed). 2019 Jan 10.

[“Biventricular Arrhythmogenic Cardiomyopathy: A New Paradigm?”](#) João Augusto, João Abecasis, Victor Gil. Int. J. Cardiovasc. Sci. vol.31 no.6 Rio de Janeiro Oct./Dec. 2018.

[“Experiencia en el tratamiento endovascular del accidente cerebrovascular isquémico agudo en un centro chileno.”](#) Authors from Clínica Santa María: Pablo Reyes S., Lautaro Badilla O., Rodrigo Rivera, Gabriel Sordo, Gonzalo Bustamante, Juan A. Pasten, Gabriel Vargas, Paula Silva, Rodrigo Guerrero, Walter Feuerhake. Additional authors: Daniel Andreu, Valentina Besaa. Revista Médica de Chile, Volume 146: 708-716 (2018).

[“Inhibition of fucosylation in human invasive ductal carcinoma reduces E-selectin ligand expression, cell proliferation, and ERK1/2 and p38 MAPK activation.”](#) Carrascal MA, Silva M, Ramalho JS, Pen C, Martins M, Pascoal C, Amaral C, Serrano I, Oliveira MJ, Sackstein R, Videira PA. Mol Oncol. 2018 May;12(5):579-593. doi: 10.1002/1878-0261.12163. Epub 2018 Mar 30. PubMed PMID:29215790; PubMed Central PMCID: PMC5928367.

[“Iron-enriched diet contributes to early onset of osteoporotic phenotype in a mouse model of hereditary hemochromatosis.”](#) Simão M, Camacho A, Ostertag A, Cohen-Solal M, Pinto IJ, Porto G, Hang Korng E, Cancela ML. PLoS One. 2018 Nov 14;13(11):e0207441. doi: 10.1371/journal.pone.0207441. eCollection 2018. Erratum in: PLoS One. 2019 Apr 29;14(4):e0216377. PubMed PMID: 30427936; PubMed Central PMCID: PMC6241130.

[“The Clinical Role of LASER for Vulvar and Vaginal Treatments in Gynecology and Female Urology: An ICS/ISSVD Best Practice Consensus Document.”](#) Preti M, Vieira-Baptista P, Digesu GA, Bretschneider CE, Damaser M, Demirkesen O, Heller DS, Mangir N, Marchitelli C, Mourad S, Moyal-Barracco M, Peremateu S, Tailor V, Tarcan T, De EJB, Stockdale CK. Journal of Lower Genital Tract Disease, 2019 Apr;23(2):151-160.

[“The Modern Obesity Treatment.”](#) Rui Ribeiro. The General Surgeon. 2019;1(2):1011. Updated Jul 09, 2019.

[“Outcomes of Long Pouch Gastric Bypass \(LPGB\): 4-Year Experience in Primary and Revision Cases.”](#) Obesity Surgery, 2019 Jul 2. [Epub ahead of print] Authors from Lusíadas Saúde: Ribeiro R, Ribeiro J, Clínica de Santo António, Metabolic Patient Multidisciplinary Centre, Reboleira, Lisbon, Portugal. Additional authors: Pouwels S., Department of Surgery, Haaglanden Medical Center, The Hague, The Netherlands; Parmar C., Whittington Hospital, London, UK; and Pereira J., Manaças L., Guerra A., Borges N., Viveiros O., Obesity and Endocrine Diseases Unit, Department of Surgery, Centro Hospitalar de Lisboa Central, Lisbon, Portugal.

[“The amount of late gadolinium enhancement outperforms current guideline-recommended criteria in the identification of patients with hypertrophic cardiomyopathy at risk of sudden cardiac death.”](#) Freitas P, Ferreira AM, Arteaga-Fernández E, de Oliveira Antunes M, Mesquita J, Abecasis J, Marques H, Saraiva C, Matos DN, Rodrigues R, Cardim N, Mady C, Rochitte CE. Journal of Cardiovascular Magnetic Resonance. 2019 Aug 15;21(1):50. doi: 10.1186/s12968-019-0561-4. PubMed PMID: 31412875; PubMed Central PMCID: PMC6694533.

[“Portuguese Group for the Study of Streptococcal Infections. Streptococcus pyogenes Causing Skin and Soft Tissue Infections Are Enriched in the Recently Emerged emm89 Clade 3 and Are Not Associated With Abrogation of CovRS.”](#) Pato C, Melo-Cristino J, Ramirez M, Friães A. Front Microbiol. 2018 Oct 9;9:2372. doi: 10.3389/fmicb.2018.02372. eCollection 2018. PubMed PMID: 30356787; PubMed Central PMCID: PMC6189468.

[“Predictors of \*de novo\* atrial fibrillation in a non-cardiac intensive care unit.”](#) Augusto JB, Fernandes A, Freitas PT, Gil V, Morais C. Rev Bras Ter Intensiva. 2018 Apr-Jun;30(2):166-173. doi: 10.5935/0103-507X.20180022. Portuguese, English. PubMed PMID: 29995081; PubMed Central PMCID: PMC6031411.

[“Systematic review and meta-analysis of the effects of treatment modalities for vestibulodynia in women.”](#) Pérez-López FR, Bueno-Notivol J, Hernandez AV, Vieira-Baptista P, Preti M, Bornstein J. Eur J Contracept Reprod Health Care. 2019 Jul 31:1-10. doi: 10.1080/13625187.2019.1643835. [Epub ahead of print] PubMed PMID: 31364893.

**The following articles are recommended for enhancing knowledge of quality and patient safety issues:**

[“The continuum of critical care.”](#) Jean-Louis Vincent. Critical Care, Volume 23, Article number: 122 (2019).

[“Scale down and scale up: how to mass customize personalized care.”](#) Helen Bevan. Institute for Healthcare Improvement website, May 2019.

[“Duration of second victim symptoms in the aftermath of a patient safety incident and association with the level of patient harm: a cross sectional study in the Netherlands.”](#) Kris Vanhaecht, Deborah Seys et al., BMJ Open. 2019; 9:e029923. doi: 10.1136/bmjopen-2019-029923.

[“Accounting for harms that cannot be counted.”](#) Peter Pronovost, Journal of Patient Safety and Risk Management. 2018, Volume 23(1) 9-10.

[“Maternal and perinatal mortality and complications associated with caesarean section in low-income and middle-income countries: a systematic review and meta-analysis.”](#) Soha Sobhy, David Arroyo-Manzano et al. The Lancet. 2019, Volume 393(10184) P193-1982.

*These publications are listed in the original published language to allow for online search.*

## Educational Opportunities

### Required Quality and Patient Safety Education Coming Soon!

Patient safety is the cornerstone of high-quality health care. Every UnitedHealthcare Global employee — regardless of their role — has an opportunity and responsibility to positively impact quality and patient safety. Your engagement enables the organization to fulfill its mission to help people live healthier lives and to help make the health system work better for everyone.

**An education course on quality and patient safety is coming soon and will be required for all UnitedHealthcare Global employees. Stay tuned for more information!**

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### OptumHealth Education

OptumHealth Education (OHE), a UnitedHealth Group company, offers free web-based, accredited medical education via their website, [optumhealtheducation.com](http://optumhealtheducation.com).

OHE is one of the few jointly accredited organizations in the world, having been simultaneously accredited to provide continuing education activities in the following areas: medical, nursing, pharmacy, psychology and social work. OHE is dedicated to providing interprofessional education that leads to improved health care delivery and better patient outcomes.

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