Oturum: Sağlıkta Dijital Dönüşüm ve Yapay Zeka Fırsatları

«Akıllı/Dijital Hastane» ve HIMSS Standartları Hastaneye Ne kazandırır?

Sağlıkta Ortak Çözüm Toplantıları
ÖHSAD

10 Nisan 2025

Dr. Öğr. Üyesi İlker KÖSE
İstanbul Ticaret Üniversitesi
Sağlık 4.0 A.Ş.

SAĞLIK 4.0

Dijital Hastane Nedir, Ne Kazandırır?

Dijital hastane: ESK'nın «anlamlı kullanımı» (Meaningful Use)

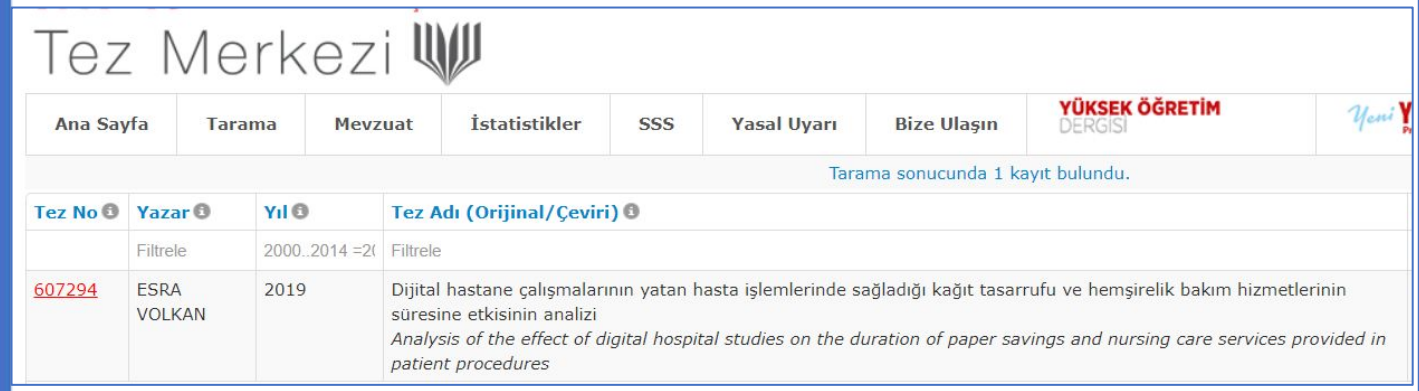
Hemşirelik Dokümanlarında Dijital Dönüşüm

Yatışlı Servislerde Dijital Dönüşümün Etkisi

Hemşirelik formları **2 saat 40-50 dakika**

Hemşire zamanından **%10,8 ila %13 arasında tasarruf**

1.153 hasta için **22 bin TL kağıt ve toner tasarrufu**

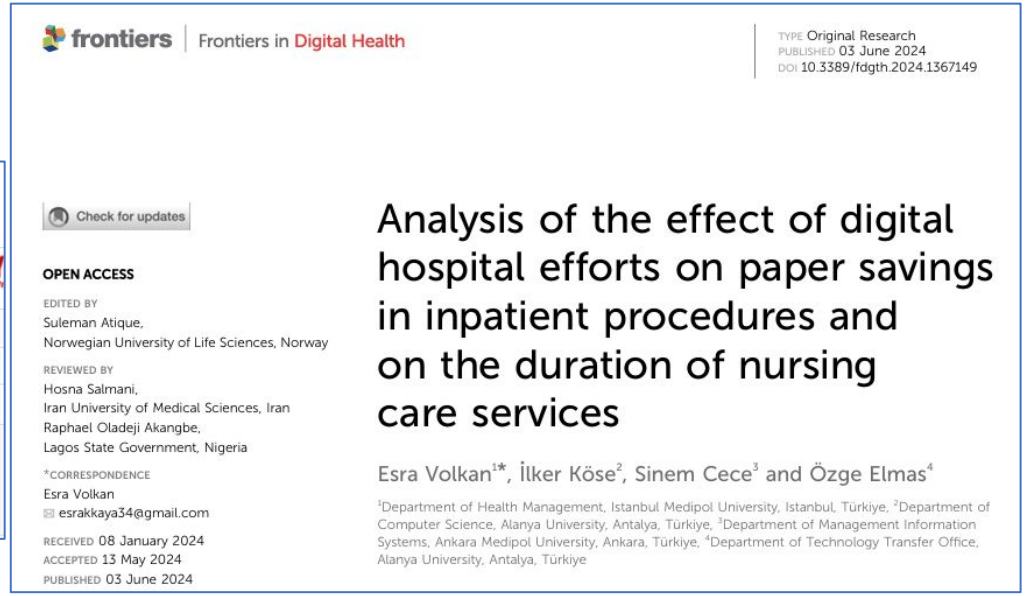


Tez Merkezi

Ana Sayfa | Tarama | Mevzuat | İstatistikler | SSS | Yasal Uyarı | Bize Ulaşın | YÜKSEK ÖĞRETİM DERGİSİ

Tarama sonucunda 1 kayıt bulundu.

Tez No	Yazar	Yıl	Tez Adı (Orijinal/Çeviri)
	Filtrele	2000..2014 =2(	Filtrele
607294	ESRA VOLKAN	2019	Dijital hastane çalışmalarının yatan hasta işlemlerinde sağladığı kağıt tasarrufu ve hemşirelik bakım hizmetlerinin süresine etkisinin analizi *Analysis of the effect of digital hospital studies on the duration of paper savings and nursing care services provided in patient procedures*



frontiers | Frontiers in Digital Health

TYPE Original Research
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Analysis of the effect of digital hospital efforts on paper savings in inpatient procedures and on the duration of nursing care services

Esra Volkan[1]*, İlker Köse[2], Sinem Cece[3] and Özge Elmas[4]

[1]Department of Health Management, Istanbul Medipol University, Istanbul, Türkiye, [2]Department of Computer Science, Alanya University, Antalya, Türkiye, [3]Department of Management Information Systems, Ankara Medipol University, Ankara, Türkiye, [4]Department of Technology Transfer Office, Alanya University, Antalya, Türkiye

Hemşirelik Dokümanlarında Dijital Dönüşüm

Yoğun Bakım Ünitesinde Dijital Dönüşümün Etkisi

Hemşire zamanından **%6,5 ila %9 arasında tasarruf**

22 yataklı bir YBÜ' de **yıllık 32 bin TL kağıt ve toner tasarrufu**

Tez Merkezi

Ana Sayfa | Tarama | Mevzuat | İstatistikler | SSS | Yasal Uyarı | Bize Ulaşın | YÜK DER

Tarama sonucunda 1 kayıt bulu

Tez No	Yazar	Yıl	Tez Adı (Orijinal/Çeviri)
	Filtrele	2000..2014 =2(	Filtrele
570899	NEVİN YILMAZTÜRK	2019	Yoğun bakım ünitelerinde tıbbi kayıtların dijitalleşmesinin iş süreçlerine etkisi *The effect of digitalization of medical records in intensive care units on work processes*

Yilmaztürk *et al. BMC Nursing* (2023) 22:201
https://doi.org/10.1186/s12912-023-01333-6

BMC Nursing

RESEARCH Open Access

The effect of digitalization of nursing forms in ICUs on time and cost

Nevin Yilmaztürk[1*], İlker Kose[2] and Sinem Cece[3]

Hemşirelik Bakımında KDS ile Dijital Dönüşüm

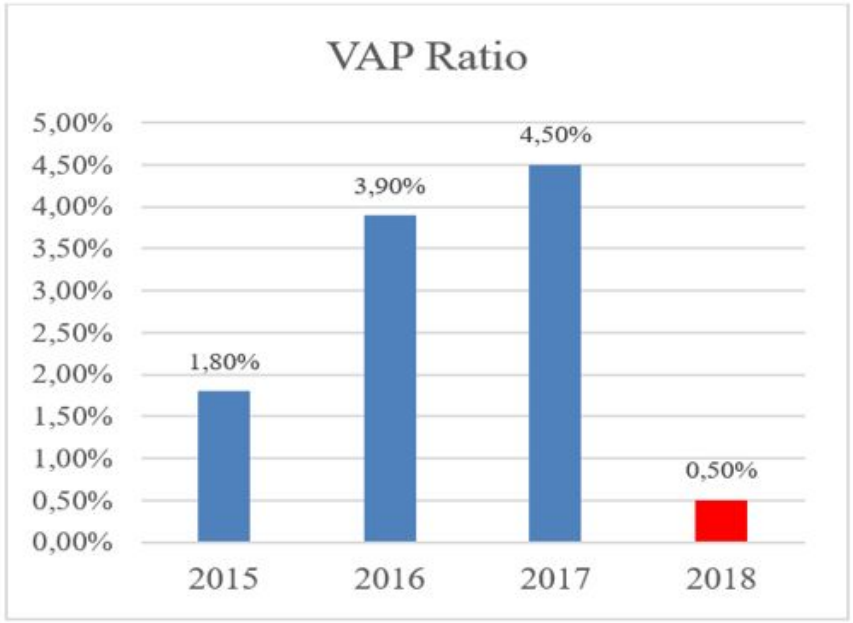
Yoğun Bakım Ünitesinde VİP Vaka Yönetimi

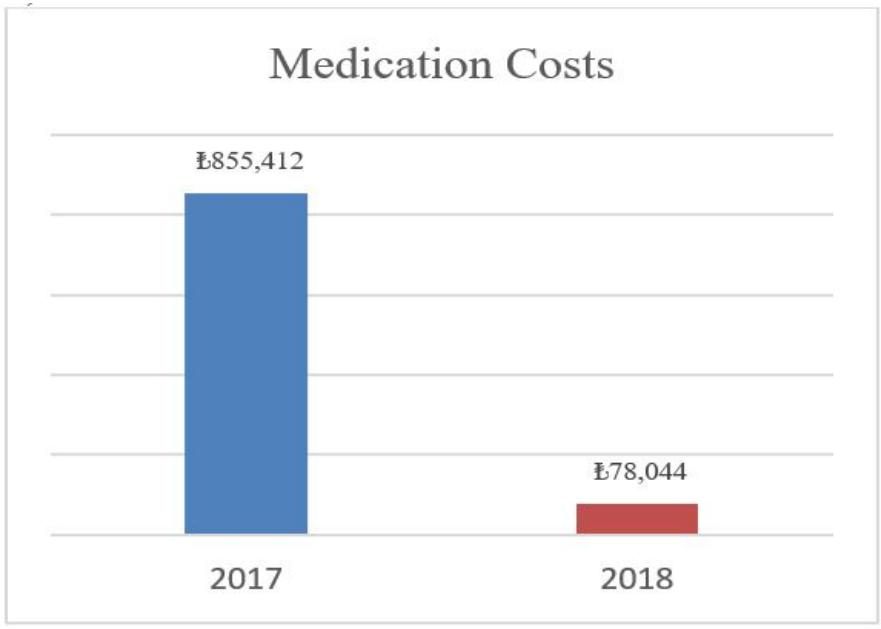
KDS ile tetiklenen ventilasyon bakım paketi sayesinde;

Vaka sayısı: **17 □ 2 (%90,87 azalma)**

Vaka oranı: **%4,5 □ %0,5**

VİP ilişkili ekstra ilaç maliyeti: **855.000,00 TL□78.000,00 TL**





The Effects of a Nursing Care Plan Incorporated with a Decision Support System on Ventilator Associated Pneumonia: A Case Study

Ozgur Bolat, Nalan Gulenc, Elife Ozkan, Nuran Aydin and Ilker Kose

Keywords: Ventilator Associated Pneumonia, Nursing Care, Decision Support System, Intensive Care Unit.

Abstract: The risk of pneumonia is high in patients who are ventilated in intensive care units (ICUs). Without proper and adequate care, this risk and the mortality rate increases. In a study conducted by the infection committee of our hospital (Izmir Tire State Hospital, the first digital (Stage 7) hospital in Turkey in 2016), it was found that the rate of ventilator-associated pneumonia (VAP) cases increased had increased over three years (2015-17) and was well above the national average. In this study, VAP prevalence in our ICU and the associated extra medication costs were calculated. Furthermore, nursing care plans related to VAP were reviewed and improvements were made according to international standards. The care plan was triggered by criteria defined in a clinical decision support system (CDSS) on the hospital information management system (HIS), and monitorization was conducted to ensure that nurses implement the care plan in a comprehensive and timely manner. As a result of the change, the rate of VAP cases, which had risen to 4.5% in 2017, was reduced to 0.5% in 2018. Similarly, we achieved cost reductions of 90.87% for VAP-based extra medications. Based on these results, it can be suggested that CDSS-supported nursing care can significantly reduce the risk of VAP and increase patient safety in the ICU.

1 INTRODUCTION

Ventilator-associated pneumonia (VAP), defined as pneumonia between 48 and 72 hours following endotracheal aspiration, is the most common infection among intensive care unit patients receiving mechanical ventilatory support (Kapucu & Ozden, 2014). In a study conducted at the national level in the USA, it was estimated that a significant 10% of patients who are connected to mechanical ventilators are diagnosed with VAP (Wang et al., 2014). Other studies found that mortality rates of 20-50% in patients connected to ventilators in intensive care units may be reduced by 13% (Klompas & Li, 2013; Melsen et al., 2013; Sara, Phillips, Kaur, & Isaac, 2015).

According to a recently published systematic review of VAP, the aims of several studies to identify, prevent, and treat VAP epidemiology were related to the prevention of associated mortality and morbidity, to reduce costs, and to improve the quality of care (Gutiérrez et al., 2019). Studies in different countries indicate that the development of VAP in patients increases the duration of ventilator utilization and hospital stay and increases patient care and treatment costs (Kalil et al., 2016), (Başyiğit, 2017; Hayashi et al., 2013; Luckraz et al., 2018; S et al., 2017).

There are many approaches to preventing the development of VAP, such as infection control measures, minimum possible intubation, re-training of health personnel, and using care guidelines (Gutiérrez et al., 2019). Alternative VAP care management plans are prepared and recommended by

693

https://www.scitepress.org/PublicationsDetail.aspx?ID=MAOMW/w03rI=&t=1

E-Order ve KDS ile Dijital Dönüşüm

Yoğun Bakım Ünitesinde TPN Kullanımı

NRS 2002 form sayısında **%95 artış**

TPN order sayısında **%38 azalma**

17 yataklı bir YB' de yıllık **75 bin TL tasarruf…**

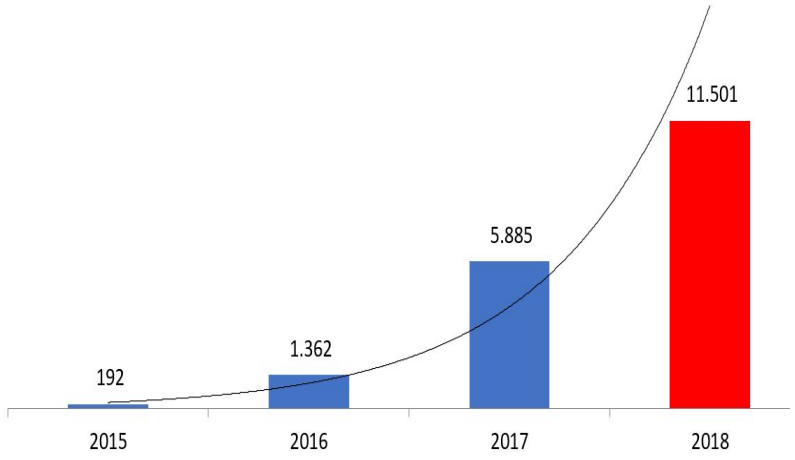
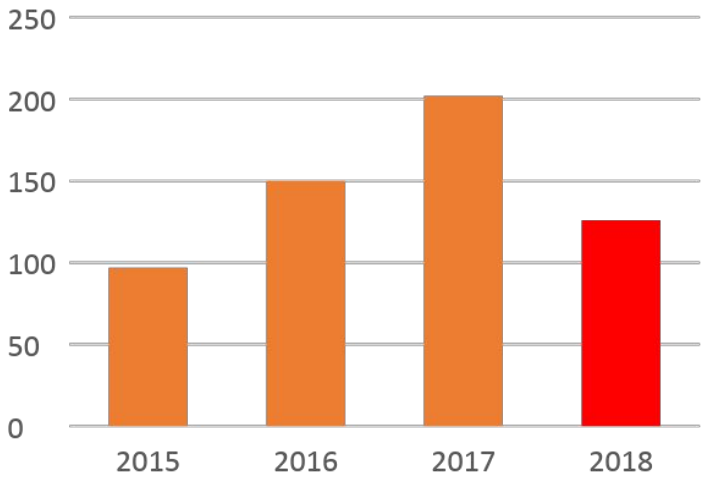


Figure 2. The increase in the number of fulfilled NRS-2002 forms in 2018



Presenting the role of CPOE incorporating with CDSS in decreasing the costs of TPN in ICU: A case study

Ozgur Bolat, Dr[1], Zehra Eraltug, RPh[1], Gizem Uzumoglu, RPh[1], Elife Ozkan, Dr[1], Ilker Kose, Ph.D.[2], Nuran Aydin, Ph.D[2], B. Özge Elmas[2], Neda Taner[2]

[1]Tire State Hospital, Izmir, Turkey; [2]Istanbul Medipol University, Istanbul, Turkey

Abstract

Total parenteral nutrition (TPN) is the treatment modality of providing intravenous nutrition for patients who cannot get oral feeding. Physicians use standard scales, such as NRS-2002 and NUTRIC, for TPN orders. The usage of NRS-2002 in public hospitals has been mandatory in Turkey since 2015. The quality management department of Izmir Tire Public Hospital recognized that TPN consumption increased dramatically since 2015. The orders, which increased in direct proportion to the number of patients, showed that it should be investigated by evaluating their necessity according to nutritional practice standards. The objective of this study is to research the effect of e-orders incorporated with a clinical decision support system on TPN consumption. We digitalized the NRS-2002 form and added a clinical decision support system to calculate the score and calorie requirements. We found that the total number of NRS-2002 forms completed by physicians increased by 95%, the number of TPN orders decreased by 41%, and the cost decreased by 38% in 2018. This study showed that e-ordering of TPN combined with a clinical decision support system is beneficial for decreasing costs.

Keywords: Parenteral nutrition (PN), Clinical decision support system (CDSS), intensive care unit (ICU), CPOE, HIMSS, EMRAM

Introduction

Parenteral nutrition (PN) is the part of treatment supplying intravenous nutrition to patients when they cannot be fed orally and/or they are unable to meet their required calorie through the enteral path. The malnutrition frequency for such patients is

İlaç Yönetiminde Dijital Dönüşüm

Kapalı Döngü İlaç Uygulamasının Fatura Kaçağına Etkisi

Faturaya yansımayan ilaç sayısı %4,4 □ %0,5

2015'te **101.000 TL'lik fatura kaçağı, 2018'de 16 bin TL'ye düştü** (yıllık ilaç sarfiyatı 2,3 milyondan 3,2 milyona çıkmasına rağmen)

Effect of closed-loop medication administration on medication billing leakage: A case study

Zehra Eraltug, RPh[1], Gizem Uzumoglu, RPh[1], Ozgur Bolat, Dr[1], Elife Ozkan, Dr[1], Nuran Aydin, Nu/Ph.D.[2], Ilker Kose, Ph.D.[2]
[1]Tire State Hospital, Izmir, Turkey; [2]Istanbul Medipol University, Istanbul, Turkey

Abstract

Sustainability is one of the critical issues in all healthcare systems. Correct invoicing of the service provided to the payment institution is fundamental for sustainability. Medications dispensed in inpatient facilities make up a considerable share of the total cost, but leaks persist for different reasons. Closed-loop medication administration (CLMA) has been found to provide beneficial consequences for healthcare quality. In this study, we analyzed invoicing leakage of medications dispensed in the inpatient facilities of a public hospital in Turkey. Then we compared the invoicing leakage before and after CLMA implementation. We found that invoicing leakage of medications decreased from 4.4% in 2015 to 0.5% in 2018 when CLMA was implemented entirely. Moreover, despite an increase in the number of drugs ordered in 2018, the loss of revenue due to billing leakage decreased by 83.8%. The results show that CLMA is not only beneficial for healthcare quality but also sustainability.

Introduction

Increased costs and patient expectations are making it more challenging to maintain the sustainability of healthcare systems in all countries. Whether the healthcare system is digitally transformed or not, there are still many gaps to narrow. The sustainability of healthcare systems is dependent on many factors, such as infrastructure, investment requirements, human resources, payment models, service quality, efficiency, patient expectations, patient perception, etc. The hospital costs always have a considerable share in overall healthcare costs in all countries. As such, the sustainability of hospitals is essential for the sustainability of the overall healthcare system. There are many aspects to consider when looking at the efficiency and sustainability of hospitals. While some studies present the benefits of hospital business process management to decrease costs and increase revenue (1), other studies focus on predictive analyses to prevent revenue leakage (2).

Medication management is an essential issue for hospitals that must supply a sufficient volume of pharmaceuticals for diagnosis and treatment protocols (3). Significant economic losses can occur when the medication management processes, including ordering, delivering, and administering the medication, are not correctly planned, implemented, and monitored. Errors such as non-evidence-based prescribing and incorrect or incomplete orders can also increase pharmaceutical costs unnecessarily. Studies have shown that millions of dollars can be saved by improving the quality of orders (4). In addition, nurses can make mistakes in terms of administering the right medication at the right dose to the right patient at the right time using the right route, especially when medication orders are verbal. These errors pose severe risks in terms of patient safety (5–8). Studies have shown that electronic order applications used in conjunction with decision support systems reduce over-use, under-use, and misuse of medications, which are also critical problems for hospitals (9–11).

Medication ordering, administration, and invoicing involves many people and can be difficult to achieve successfully and monitor. Many studies show the benefits of using electronic medication management systems to handle this process. In particular, they provide a significant reduction in the number of incorrect prescriptions (8)(12)(13). The administration of medications through electronic systems also helps to achieve treatment in a shorter time (14). The impact of all these benefits on patient health is becoming more important for hospitals where medications are consumed extensively (15)(16).

Closed-loop medication administration (CLMA) describes a three step process beginning with the physician's medication orders supported by decision support systems (DSS), continuing with a second verification of the medications by the pharmacist, and ending with a checkpoint during bedside medication administration by the nurse regarding the five-right rules (right patient, right medication, right dose, right time, right route) (17). The positive effects of CLMA on health service quality, patient, and medication safety have been presented in many studies (18–

İlaç Yönetiminde Dijital Dönüşüm

Kapalı Döngü İlaç Uygulamasının İlaç İadelerine Etkisi

Kullanılmayan ilaçların iadesinde **%10,74 artış**

Tez Merkezi

Ana Sayfa | Tarama | Mevzuat | İstatistikler | SSS | Yasal Uyarı | Bize Ulaşın | YÜKSEK ÖĞRETİM DERGİSİ | Yeni YÖK Projeleri

Tarama sonucunda 1 kayıt bulundu.

Tez No	Yazar	Yıl	Tez Adı (Orijinal/Çeviri)	Tez Türü	Konu
	Filtrele	2000..2014 =2(	Filtrele	Filtrele	Filtrele
567949	ECEBERİL ÖZTÜRK	2019	Hastanelerde yatışlı servislerde kapalı döngü ilaç uygulamasının ilaç iade oranlarına etkisinin araştırılması *Analysis of the effect of closed-loop medication administration on drug return rates while hospitalization*	Yüksek Lisans	Sağlık Kurumları Yönetimi = Health Care Management

Eceberil Ozturk et al. *Medical Research Archives* vol 8 issue 12. Medical Research Archives

RESEARCH ARTICLE

Effect of Closed Loop Medication Administration on Drug Returns in Inpatient Facilities

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Abstract
Medication management in inpatient facilities is a crucial issue for patient safety. In inpatient conventional drug management, a common problem relates to drugs prescribed and delivered to patients being returned to the pharmacy without reason for the return. When reasons are given, they are not often regularly and correctly recorded. Closed Loop Medication Administration (CLMA) protects patient safety by managing all processes, including intake of the drug to the hospital's stock, administering the drug to the patient, and disposal of unused drugs using technology. CLMA is known to contribute positively to patient safety. However, there is no study on the effect of CLMA on the return of non-administered drugs. This study aims to analyze the effect of CLMA on drug return rates and investigate the data quality of reasons for drug returns. The research was carried out in three inpatient clinics of a Turkish state hospital (Bolu İzzet Baysal Public Hospital) where the CLMA was implemented in May of 2017. The data set obtained from the hospital information system (HIS) is anonymized. The study showed a significant increase in drug return rates after CLMA, and the data quality of drug return reasons is also significantly improved. These results show that CLMA contributes positively to drug return rates and the data quality of drug return reason records.

Keywords: Closed Loop Medication Administration, Drug Return, Digital Hospital, EMRAM

MRA

https://esmed.org/MRA/mra/article/view/2289

Klinik Uyarılar ile Dijital Dönüşüm

Yatışlı Servislerde İlaç-Besin Etkileşimi

Toplam **27.455** hasta,
1.451 farklı ilaç,
1.620.573 defa uygulandığı tespit edilmiştir.

Hastaların **581 (%2,1)** tanesine uygulanan **8 (%0,55)** farklı ilacın besinlerle etkileşime girebildiği, bu ilaçların da **8.089** defa **(%0,49)** reçete edildiği tespit edilmiştir.

Ilker Köse, et al. *Medical Research Archives* vol 9 issue 2. Medical Research Archives

RESEARCH ARTICLE

Analysis of drug-food interactions in inpatient treatment: A university hospital case

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Summary

Patients' nutrition during inpatient treatment can reduce the pharmacodynamics of drugs. Therefore, monitoring of drug-nutrient interactions is essential for patient safety. Pharmaceutical Data Banks (PDB) databases provide information regarding potential drug-drug, drug-food, and drug-allergy interactions. When Clinical Decision Support Systems (CDSS) are integrated with PDBs, drug-drug and drug-allergy interactions can be prevented when physicians prescribe drugs and when pharmacists evaluate those prescriptions. However, nutrition planning is done by dieticians, and it is not common practice for dieticians to use CDSSs integrated with PDB to access patient prescription information. This study aims to measure drug-food interactions in hospitals where physicians and pharmacists use CDSSs integrated with PDBs. For the most part, dieticians plan patient diets according to the patient's primary disease (diabetes, etc.) and do not access prescription data. We cooperated with a university hospital in Turkey, accredited by HIMSS in 2017 at EMRAM Stage 6, to monitor hospitalized patients for at least one week in 2018. According to the findings, it was determined that 1,451 different drugs were administered 1,620,573 times to a total of 27,455 patients. It was determined that eight (0.55%) different drugs administered to 581 (2.1%) of the patients could interact with food and that these eight drugs were prescribed 8,089 times (0.49%) during the observation period. Although some drug-nutrient interactions were documented due to the study, the number of detected and documented interactions and their severity were relatively low. Precautions taken by dieticians, such as completely removing certain nutrients, like grapefruit, from the diet list, seem to be effective in preventing common interactions. To eliminate drug-nutrient interactions, it will be beneficial for dieticians to access patients' prescribing information and use the CDSS integrated with PDB.

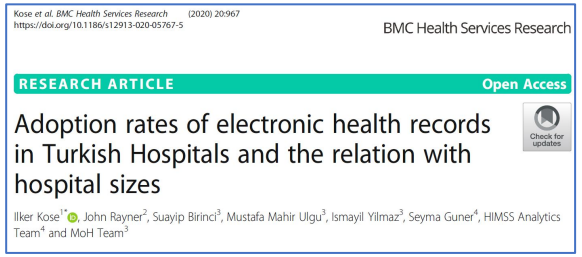
Keywords: Drug-Food Interaction, Pharmaceutical Data Bank, Clinical Decision Support Systems, HIMSS, EMRAM

MRA

https://esmed.org/MRA/mra/article/view/2345

SAĞLIK 4.0

ESK ve Fonksiyonları ile Dijital Dönüşüm



Kose et al. BMC Health Services Research (2020) 20:967
https://doi.org/10.1186/s12913-020-05767-5

BMC Health Services Research

RESEARCH ARTICLE Open Access

Adoption rates of electronic health records in Turkish Hospitals and the relation with hospital sizes

Ilker Kose[1*], John Rayner[2], Suayip Birinci[3], Mustafa Mahir Ulgu[3], Ismayil Yilmaz[3], Seyma Guner[4], HIMSS Analytics Team[4] and MoH Team[3]

Köse et al. BMC Health Services Research (2023) 23:987
https://doi.org/10.1186/s12913-023-09859-w

BMC Health Services Research

RESEARCH Open Access

Basic electronic health record (EHR) adoption in **Türkiye is nearly complete but challenges persist

İlker Köse[1*], Sinem Cece[2], Songül Yener[3], Senanur Seyhan[3], Beytiye Özge Elmas[3], John Rayner[4], Şuayip Birinci[5], Mustafa Mahir Ülgü[5], Esra Zehir[5] and Berrin Gündoğdu[5]

Article

Electronic Health Record Adoption in Oral and Dental Health Centres in Turkey

Journal of Health Management
1–10
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DOI: 10.1177/09720634241237596
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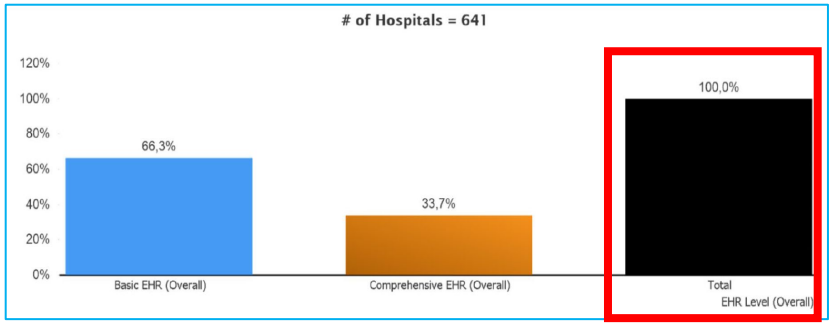
Sage

İlker Köse[1], Sinem Cece[2], Songül Yener[3], Senanur Seyhan[3], Beytiye Özge Elmas[4], John Rayner[5], Şuayip Birinci[6], Mustafa Mahir Ülgü[6], Esra Zehir[6] and Berrin Gündoğdu[6]

Table 15 Comparison EHR adoption of the USA (in 2017), Korea (in 2017) and Turkey (in 2014–17)

Hospital Size	USA	Korea	Turkey
Basic EHR functions	41.4%	NA	27.1%
Comprehensive EHR functions	39.1%	NA	36%
Hospitals having at least basic EHR functions	80.5%	58.1%	63.1%



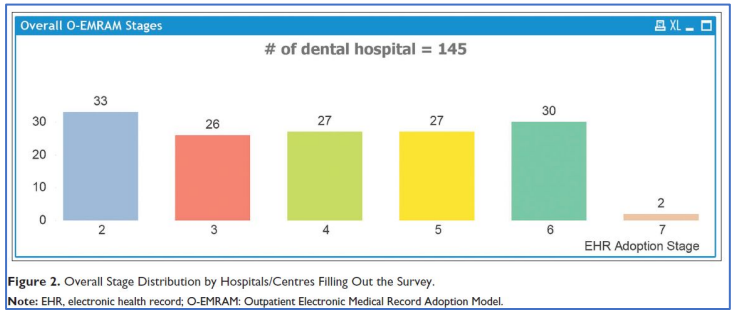


Figure 2. Overall Stage Distribution by Hospitals/Centres Filling Out the Survey.
Note: EHR, electronic health record; O-EMRAM: Outpatient Electronic Medical Record Adoption Model.

2020 — 2021 — 2024

61+ Şehir ziyareti

300+ validasyon ziyareti

SKS - EMRAM İlişkisi

SKS Perspektifinden EMRAM

SKS-Hastane	HIMSS EMRAM GEREKSİNİMLERİ										
KURUMSAL HİZMETLER	Bilgi Sistemi Varlığı	Cihaz Entegrasyonu	Bilgi Sistemi Kullanımı (%50)	2. Seviye KKDS	Veri Güvenliği	İş Sürekliliği	3. Seviye KKDS	Teknoloji Kullanarak Doğrulama	İş Analitiği	Bilgi Sistemi Kullanımı (%100)	Veriye Dayalı Yönetim Kültürü
SAĞLIK HİZMETLERİ											
Hasta Bakımı	1			3	3	6					
İlaç Yönetimi	1			3	3	6		6			
Enfeksiyonların Önlenmesi							6		7		7
Sterilizasyon Hizmetleri	7		7					7		7	
Transfüzyon Hizmetleri	1			6				6		6	
Radyasyon Güvenliği		1		1						1	
Acil Servis	1		6	6	3	6	6			7	
Ameliyathane	1	7		7	7	7		7		7	
Yoğun Bakım Ünitesi	7	7	7	7	7	7	7	7	7	7	7
Yenidoğan Yoğun Bakım Ünitesi	1		6	6	3	6	6	6		7	
Doğum Hizmetleri	1		6	6	3	6		6		7	
Diyaliz Ünitesi	1		6		3	6				7	
Psikiyatri Hizmetleri	1		6		3	6				7	
Biyokimya Laboratuvarı		1		3	3	6		6		1	
Mikrobiyoloji Laboratuvarı		1		3	3	6		6		1	
Patoloji Laboratuvarı		1		3	3	6		6		1	
Doku Tipleme Laboratuvarı		1		3	3	6		6		1	

Ne Durumdayız?

Validasyon İstatistikleri (2013-2025)*

Model	Aktif			En az Bir Kere Valide Olan Hastane Sayısı			Toplam Validasyon Sayısı		
	Seviye 6	Seviye 7	Toplam	Seviye 6	Seviye 7	Toplam	Seviye 6	Seviye 7	Toplam
EMRAM	36	8	44	219	10	229	266	18	284
O-EMRAM	13	3	16	29	3	32	34	5	39
TOPLAM	49	11	60	248	13	261	300	23	323

** Validasyonlar 3 yıl geçerli. Listede kalmak içi yeniden valide olmak gerekiyor*

HIMSS Hakkında...

HIMSS Hakkında

HIMSS kimdir?

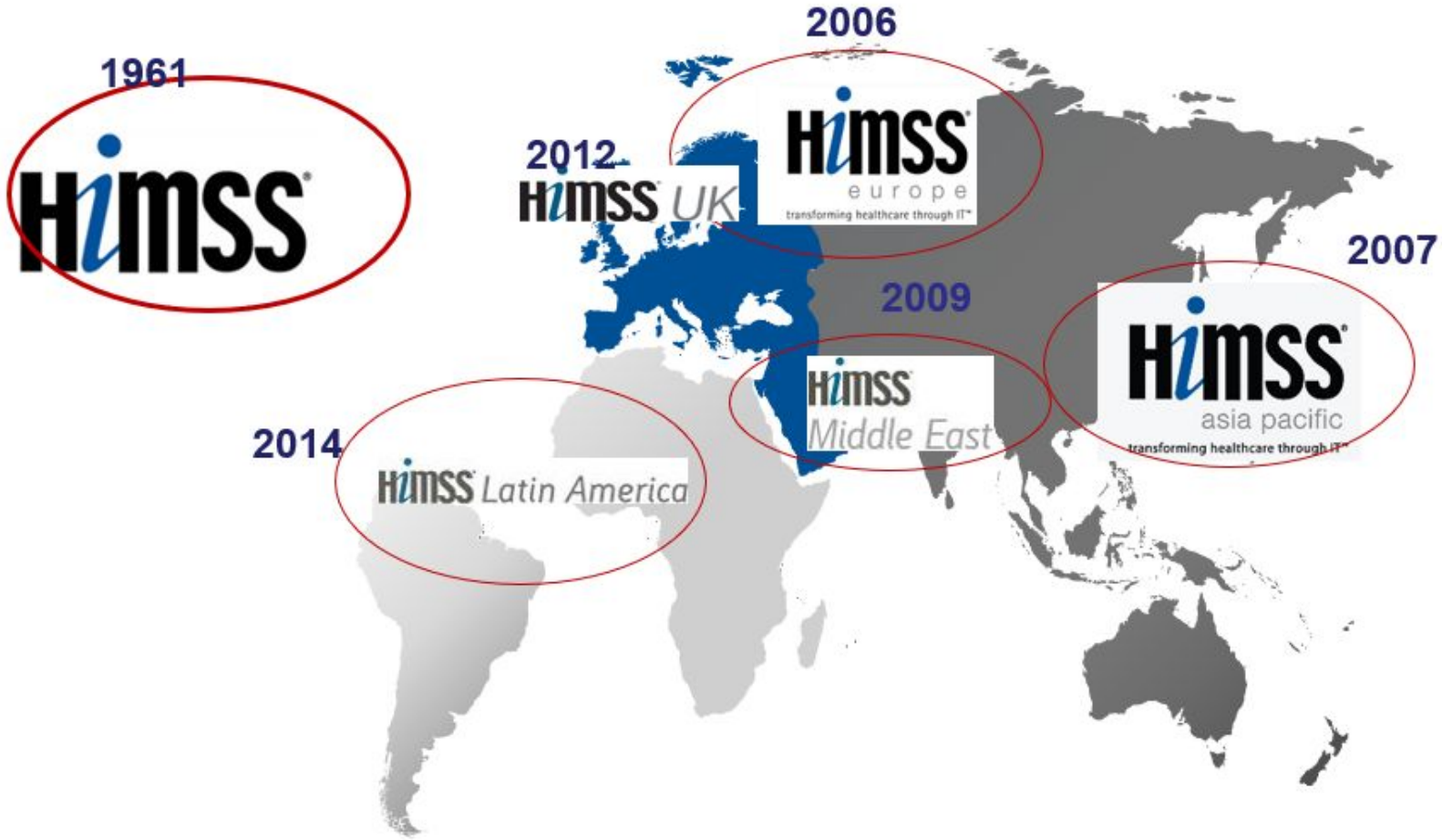
Başlangıçta adı Hastane Yönetim Sistemleri Topluluğu (Hospital Management Systems Society) olan HIMSS (Healthcare Information and Management Systems Society), **1961 yılına dayanan bir geçmişe sahip** olan, ABD'de kurulmuş **bir sivil toplum kuruluşudur.**

Vizyonu nedir?

Vizyonu, **teknoloji ve bilginin daha iyi kullanımını sağlayarak sağlığı iyileştirmektir**.

HIMSS Hakkında

HIMSS nerelerde etkin?



HIMSS Hakkında

HIMSS' in kaç tane derecelendirme standardı vardır?

- EMRAM (Yatışlı hizmet veren tedavi merkezleri)
- CCMM (Hastanın tüm tedavi süreçleri)
- AMAM (Analitik kapasite)
- O-EMRAM (Ayakta tedavi merkezleri)
- DIAM (Dijital görüntüleme)
- INFRAM (Bilişim Altyapısı)
- CISOM (Klinik olarak entegre edilen çıktılar)

HIMSS EMRAM Seviyeleri

Seviye	İfade Ettiği Durum
7	**Dinamik sağlık kaydı** Stratejik sağlık yönetimi girişimleri için analitik içgörülerden yararlanan ilgi çekici bir sağlık ortamını teşvik etmek için dinamik araçlardan yararlanın.
6	**Gelişmiş veri alışverişi** Gelişmiş hasta katılımı, klinik verimlilik ve departman içgörüleri için gelişmiş veri alışverişi ve birlikte çalışabilirlik için sağlık teknolojisinden yararlanın.
5	**Veri entegrasyonu** Etkili veri entegrasyonu, hasta bilgilerinin platformlar arasında sorunsuz bir şekilde paylaşılmasını sağlayarak uzaktan konsültasyonları ve sürekli bakımı destekler.
4	**Yönetişim ve elektronik istemler** Verimliliği artırmak ve operasyonel maliyetleri azaltmak için yönetişim ve elektronik kayıt standardizasyonunu güçlendirin.
3	**Elektronik dokümantasyon ve gelişmiş güvenlik** Hasta verileri elektronik olarak standart bir formatta yakalanır ve uygun sağlayıcılar tarafından temel klinik karar desteğinden yararlanılarak teşhis ve tedavi için kullanılır.
2	**Klinik veri havuzları** Büyük miktarda hasta bilgisini depolayan merkezi veri tabanları oluşturularak sağlık hizmeti sunumu ve araştırmaların iyileştirilmesi sağlanır.
1	**Kurulu yardımcı sistemler** Elektronik tıbbi kayıt ve hastaya özel erişilebilir sağlık bilgileri için temel oluşturur.
0	**Departman sistemleri kurulu değil** Departmana özgü sistemlerin olmaması, klinik iş akışlarının ve veri yönetiminin sorunsuz entegrasyonunu engelleyebilir.

SAĞLIK 4.0

Teşekkürler