The Use of Unscheduled Returns to the Emergency Department as a Quality Indicator: An Integrative Review

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Declaration

This project/thesis/portfolio doesn't contain any material which has been accepted for the award of any other degree or diploma in any university and that, to the best of the candidate's knowledge and belief, the project/thesis contains no material previously published or written by another person except when due reference is made in the text of the project/thesis/portfolio.

Signed: _____

Date: _____/_____/_____

Abstract

Background: Repeat visit by patients to the Emergency Department (ED) is a feature of busy emergency services, however the volume of writing and research relating to unscheduled returns (USR) to the ED is increasing exponentially. While these reports are very varied, few papers have conceptualised USR to the ED as a quality indicator. Overall, USRs to the ED have been defined as re-presentations of patients for the same chief complaints to EDs within a specified period of time of their initial visit.

Objective: The objective of this study was to assess and conceptualise how USRs to the ED is being used by researchers as a measure or as a quality indicator.

Methods: Integrative review methodology was used to review articles relating to USR to the ED from three databases: CINAHL, MEDLINE and SCOPUS. All papers were assessed against inclusion criteria. The 79 articles included in the integrative review were codified into categories, and further subdivided into branches.

Results: The findings overall reveal significant heterogeneity in the use of USR to the ED as a quality indicator. The 79 papers were represented in five core categories (and branches) related to USR to the ED as quality indicator, six of these papers were codified into two core-categories. The categories for use of USR as a quality indicator are: 1) 'USR rates and USR vulnerable populations' represented by 42 papers and codified in six branches; 2) 'Different factors influencing prevalence of USR in particular ED settings' represented by 24 papers codified in eight branches; 3) 'Improving the system of care in the ED using USR is an outcome measure' represented by 14 papers codified in eight branches; 4) 'Outside ED measures that identify USR risk' represented by three papers codified in two branches; and 5) 'Costs of USR' represented by two papers codified in two branches.

Conclusion: This study reveals the relative importance of USR to the ED used as a quality indicator. This is an evolving area of research, and it has important implications for policy and ED practice. Moreover, three main points about the subject were identified: Health groups and USR risks; factors influencing USR prevalence; improving the system of care in the ED and evaluating impact using USR. Furthermore, the research on this subject is very context specific and some researchers suggest the need for using USR in combination with other measurements to have most reliable results.

Key words: Unscheduled returns, emergency department, quality indicator.

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Chapter One: Introduction

My name is Nathane Carolina Vieira de Sales, I am currently studying for a bachelor nursing in Brazil. During 2014 I have been undertaking a study abroad program at Monash University with a scholarship of Science Without Boarders program from Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES). When I first enrolled in the subjects associated with the Monash Honours program I responded to an advertised topic, and I volunteered to undertake research in relation to the phenomena of 'Unscheduled Returns to the Emergency Department'.

This thesis is a report of the work that I have undertaken on this topic during the year. In this chapter I have the primary goal of describing the background to the research, identifying the research question and the approach that was taken to advance knowledge in the area of ED practice, and to identify the potential importance of the research.

1.1 Background to the Research

It is necessary to first provide some background to the context of this research study, and to outline the general nature of people making unscheduled returns (USR) to the Emergency Department (ED).

1.1.1 Background to the research and supervisory team

Researchers Associate Professor Cheryle Moss from Monash University, Australia and Dr Katherine Nelson from Victoria University of Wellington, New Zealand have over the past years been researching the needs for care of People who make Multiple Presentations (PMPs) to the ED (Moss and Nelson 2014, Moss et al. 2014, Nelson et al. 2011a, Nelson et al. 2011b). Researching the needs and experiences of PMPs revealed that sometimes the characteristics of the PMP visits to the ED were not the same as their normal re-presentations to the ED, being on occasion, re-presentation with the same clinical issue and within a short time frame of their last ED visit. Such visits seemed more appropriately to be considered as USRs.

This difference in attendance to EDs outside of 'normal' PMP behaviour, raised the question of whether these re-presentations were being contributed to by some potential deficiency in ED treatment. In Australia, the usual clinical quality indicators in EDs focus on measures such as waiting time following triage category determination, time from treatment to discharge, time from treatment to hospital admission, pain management, time to thrombolytic therapy for

acute myocardial infarction, discharge communication and patients who did not wait (Australian Council on Healthcare Standards. 2012). If USRs are indicative of a deficiency in ED treatment, then measuring the rate of USRs would be of value.

Initial reading of published papers in relation to USR's led the group of researchers to realise the wide international variation in definition and in the range of ideas that various researchers attached to the significance of USR as an ED phenomenon. These initial findings prompted an advertisement for an Honours level student to undertake a literature review in relation to USR to the ED.

Neither Moss nor Nelson have experience as ED nurses so Ingrid Brooks, who is an academic at Monash University and a very experienced ED nurse and nurse educator joined the research supervisory team. When Brooks went on study leave in the 2nd Semester of my enrolment, Kerry Hood who has a similar profile was added to the team. The role of the supervisory and research team has been to meet regularly and to evolve the project across two semesters.

1.1.2 Background: USRs to the ED

Return visits by patients to ED are part and parcel of any busy emergency service. An unscheduled revisit is different from frequent clients of the ED and from patients who are advised to return to the ED. USR is defined as a re-presentation of patient for the same chief complaint to the ED within a specified time period of their initial evaluation (Wu et al. 2010). We adopted this definition as one of the issues that was uncovered while undertaking the background search, is that researchers use different periods of time to USR. For instance some researchers use short timeframes for USR eg. Burström et al. (2012) used 24 hours and von Besser and Mills (2011) used 48 hours; others use medium timeframes eg. Guttman et al. (2004) used 14 days and Calder et al. (2014) used 30 days; and others use wide timeframes eg. Dendukuri et al. (2004) used five months and Di Bari et al. (2012) used six months. The person's original presentation to ED is often called the index visit. A further issue with USR language that was identified during the background search is that some researchers, particularly those from the USA and Canada (Calder et al. 2014, Feldman et al. 2013) call any USR to ED an adverse event; while others see adverse events as unexpected complications that patients may encounter (Harrison et al. 2002, Hollingsworth et al. 2013).

When the background reading for this study was commenced, the thinking of the researchers was heavily influenced by insights and arguments presented by four papers. Easter and Bachur (2013) drew our attention to the fact that a percentage of USR's may represent unnecessary

visits that could have been avoided if different actions had been undertaken by clinical staff on the initial visit. Nuñez et al. (2006) also identified that initial evaluation or treatment may have been inadequate when patients return shortly after being discharged from ED. Furthermore, a persistent problem for emergency physicians are the patients who make USRs to the ED with an illness that either has not improved or has deteriorated (Lerman and Kobernick 1987). Sauvin et al. (2013) extended these arguments when they identified that the principal causes of USRs to the ED are patient-related factors, disease-related factors, and medical errors. Nevertheless the circumstances surrounding these repeat visits remain poorly understood.

An initial literature search for an indicative background of USR to the ED, subsequently drew attention to how USR had been investigated by researchers. It was found that some researchers considered USR rates as a measure of quality of performance for EDs (Kuan and Mahadevan 2009). It was also discovered that some researchers studied populations or groups characterized as being at high risk for errors in diagnosis or physician management (Ali et al. 2012) and noted USR rates in relation to this. It was realised that USR's are an important concern for ED management, and the can be a key element of routine ED audits.

The findings from the initial search revealed three key points. The first point of significance was USR to the ED is a topic of increasing interest and relevance to ED researchers. The volume of writing and research relating to USR to the ED is increasing exponentially. Early work on USRs appeared in the 1987, when Lerman and Kobernick (1987) argued that USR to the ED is a persistent problem which should be prevented looking at errors in medical care and patient instruction, and that trend is worldwide because these patients represent a medico legal high risk group. The second point was that internationally the use of USR to the ED was very varied (USR risk associated with: diagnoses, treatment and intervention protocols; ED staffing; and ED systems of care delivery), and that there appeared to be uniting threads in this usage to quality management. Thirdly, when looking for research papers no systematic review, and few conceptual and primary papers identified this wide range of usage of USR as a quality indicator. A rapid evidence assessment policy review (Trivedy and Cooke 2013) of adult USR's to the ED found wide variations; they identified four broad subtypes of USRs: those associated with patient factors, with the illness, with the system and organisation, and those associated with the clinician. They also identified that further work should be undertaken in relation to these variations particularly if USR rates are to be used in the future as a quality indicator of ED care.

In response to these initial findings it was determined that an integrative review of the literature, would be a very useful addition to the current scientific writing on USRs. In this thesis the processes of establishing the protocol for the integrative review, systematically searching for relevant literature and the results of the analysis of the literature are presented.

1.2 Aim

The aim of this study was to assess and conceptualise how adult USRs to the ED, is being used by researchers as an ED quality indicator.

This aim is expressed as a single primary research question: How are researchers using the phenomena of USRs to the ED as a quality indicator?

1.3 Research Approach

The approach adopted for this study was an integrative review. The goal of an integrative review is to target review and synthesis of representative literature on a topic in such a way that new perspectives on the topic are generated or new frameworks are proposed (Torraco 2005). When applied to this research topic the intention of the research was to investigate representative literature for how USR to the ED were used as a measure of quality; then to see if codification in relation to type of purpose might provide a new or a modified classification. Additionally by codifying and classifying this data, some unifying features of core categories and sub-categories (named as branches) may be identifiable.

1.4 Significance of the Study

This study is intended to enhance current understanding of USRs to the ED. In doing so the results of this study are likely to contribute to international work that is currently in progress. This applies particularly where that work is seeking to define, test or modify the use of USRs to the ED as a measure of performance and/or as a quality indicator.

The research results should inform ED policy analysts, ED clinicians and medical services, and ED teams generally. Systematic retrieval of research, analysis of papers, the resultant synthesis and classification should assist clarity of the concept of USR, the phenomena of USR and ED care and outcomes, and the various uses for which USR can be and is being used as a measure or quality indicator for ED quality assessment.

This study has identified that, and by implication USR factors are associated with quality assurance, diagnostic accuracy and treatment regimes, patient prognosis and USR prevalence,

the consequences and outcomes of ED service and treatment innovations, and managing risk of USR and need for follow up care. This is significant because in the medium to long term the results of multiple studies investigating USRs together are likely to contribute to improvements to the quality of care and patient outcomes, and may also lead to increased job satisfaction for ED nurses and physicians.

1.5 Thesis Outline

This thesis consists of five chapters that collectively describe the current state of research regarding the use of USRs to the ED as a quality indicator. In this chapter the background to the research question and approach has been introduced. In Chapter Two the methodology and methods of integrative review, which were used for conducting the research, are identified and described. The findings of the study and the resultant classification are presented in some detail in Chapters Three and Four. In Chapter Five the findings and their significance is discussed. This thesis concludes with reflections on the implications of the study. Some recommendations for future work in relation the use of USR to the ED as a measure of quality and/or as quality indicator are drawn.

Chapter Two: Methodology and Methods

In this chapter the methodology and methods used in the study are described and argued. The chapter is presented in six sections, these are: the research approach, protocol development and use, search strategy, data collection, data classification and synthesis, and summary.

2.1 Research Approach: Integrative Review

An integrative review methodology was selected as the approach for this study. In this section of the chapter key methodological processes and steps are identified and discussed.

2.1.1 Why select integrative review as the approach for this research?

Integrative reviews of the literature, are commonly undertaken in nursing and in health research (Evans 2007, Vanderheide et al. 2013, Whittemore and Knaffl 2005). In undertaking an integrative literature review the researcher usually seeks to "synthesise representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated" (Torraco, 2005, p.356). Integrative reviews are usually selected as the method of choice when there is a need for a 'mature topic' (size and scale of literature) to be studied, and potentially reconceptualised in relation to its evolving and diverse knowledge base (Torraco, 2005, p.357) or when there is 'a new and emerging topic' that would "benefit from a holistic conceptualisation and synthesis of the literature to date" (Torraco, 2005, p.357).

Accordingly, integrative reviews provide a broader investigation of a topic than theoretical reviews, methodological reviews, scoping reviews and systematic reviews (Cooper 1984, Evans 2001, Evans 2007, Whittemore 2005). Integrative reviews commonly incorporate the findings from a range of different research designs. However, because their focus encompasses multiple methodological perspectives, the complexity also gives rise to difficulty in determining the optimal review method, and this is evident in the many different approaches that have been used in published integrative reviews (Holly C. 2012).

Torraco (2005) identifies four forms of synthesis that integrative reviews can seek to achieve, these are: "1) a research agenda that flows logically from the review; 2) a taxonomy or other conceptual classification of constructs as a means to classify the research; 3) alternative models or conceptual frameworks to provide new ways of thinking about the topic; and 4) for the development of metatheory across theoretical domains" of the topic (p.363). For this study, the goal was to assess and conceptually classify how adult USRs to the ED, is being used

by researchers as a measure or indicator of quality; and the topic was treated as a new and emerging topic that required holistic conceptualisation and synthesis of the literature to date.

2.1.2 Core processes and methods associated with integrative reviews

Evans (2007) notes that the methods and core processes of integrative reviews are varied and evolving; also that the methods of integrative review are being influenced by the growth in procedures and methodologies for systematic reviews. Nevertheless it is important for research teams to identify the processes that they are using and any relevant sources that have influenced these choices. The processes adopted for this study were generated by consideration by of what was needed for an integrative review on this topic and influenced by writing on the integrative review (Evans 2007, Torraco 2005, Vanderheide et al. 2013, Webb and Rose 2007, Whittemore 2005, Whittemore 2007, Whittemore and Knaffl 2005) on scoping reviews (Levac D. 2010, Weeks and Strudsholm 2008) and on systematic reviews (Aromataris and Pearson 2014, Evans 2001, Pearson et al. 2007). The main processes utilised for the integrative review are identified in Table 1.

There are several aspects of the methods used that require further justification. In integrative reviews it may not be necessary to critically appraise the quality of included studies and to check the validity of results in single studies. It also may not be necessary when working with published literature reviews, or systematic reviews on the topic to retrieve and assess the included papers individually as it can be satisfactory to report the findings of the reviews directly (Evans 2007). Evans (2007) identifies that these decisions rest on the research question and purpose of the research, and that these steps may be inappropriate when the goal of the integrative review is to conceptualise the nature and scope of existing research, and/or "explore the definitions that have been used in past investigations" (p.143). Whittemore (2007) supports this position, but suggests that adopt relevant processes for determining sample size (small sample may lead to less robust and generalizable conclusions, and a large sample size may contribute to difficulty in conceptualization and synthesis); a systematic approach for organizing and collecting the data from primary sources needs to be applied; a "standard and thorough examination of each primary source" (p.151) is required; "pre-determined relevant data need to be extracted" (eg. tables) (p.151), and that two individual reviewers code/check the relevant primary sources.

These principles were applied in this study.

Integrative review core processes & methods identified from literature	Rationale for adoption in this integrative review	Reported
Protocol development	To enable the protocol to be followed during the process of the integrative review.	Reported in Chapter 2.
Problem identification.	To establish the focus & purpose of the review.	Reported in Chapters 1 & 2.
Review question & PICOT.	To operationalise the research question & search strategy.	Reported in Chapter 2.
Selection criteria (key variables of interest to the review) & sample size.	To balance the scale & scope of the review, & to ensure that reasonable conceptualisation & synthesis was possible.	Reported in Chapter 2.
Inclusion & exclusion criteria.	To provide consistent assessment & treatment of primary sources, to reduce selection bias.	Reported in Chapter 2.
Comprehensive/Indicative searching.	To ensure sufficient coverage of the topic for conceptualisation.	Reported in Chapter 2.
Appraisal of author & journal credibility (not quality of included studies, not validity of results).	Researcher agreed criteria to ensure researcher authority & peer-reviewed academic processes had been used by the journal prior to publication of the research paper.	Reported in Chapter 2.
Classification & synthesis of extracted findings – conceptual & thematic.	An inductive process resulting from the data extraction from individual primary sources. The inductive & naturalistic processes adopted were likely to result in different extents of categorical & conceptual saturation.	Reported in Chapters 3 & 4.
Transparent reporting of the methodology & methods used to conduct the review.	Accepted as quality criterion for the study.	Reported throughout the thesis.

Table 1: Core Processes and Methods Adopted for this Integrative Review

2.1.3 Tests of reasonableness and attainment of rigour in integrative reviews

There is some writing regarding sources of error in integrative reviews and the methodological processes that can be employed by the research team to minimize these (Sandelowski 2007, Whittemore 2007, Whittemore and Knaffl 2005). Whittemore (2007) summarises key concerns as "1) unexplained selectivity and lack of discrimination during the literature search and sample selection, 2) erroneous detailing of analysis and suppression of contrary findings, 3) consequential errors and failure to consider all evidence relevant to the generalization" (p.154). These were minimised during the integrative review processes by care and attention in the search strategy to finding the primary sources, careful and judicious use of inclusion and exclusion criteria, piloting the data extraction form, the systematic use of the data extraction form for each individual paper, the use of two reviewers to extract data, and the use of

systematic methods and inductive processes for category generation and classification of the primary core codes and secondary branch codes within these.

Integration in review can also be made using both quantitative and qualitative research. Combination of these two types of research provides more relevant information, being characterized as a robust valid evaluation of findings. The inclusions of qualitative evidence with representations of quantitative studies afford a more detailed understanding about the subject (Webb and Rose 2007).

In conclusion, the integrative review methodology enables researchers to summarise past research, draw overall conclusions by integrating and classifying the findings from individual studies, and to highlight unresolved issues and provide direction for future research. For this study the use of integrative review methodology will achieve this in relation to USR to the ED as a quality indicator.

2.2 Protocol Development and Use

An integrative review was undertaken because it has potential to fill a gap that exists between the varieties of studies about USR. Using this type of literature review it was possible to plan, summarise and classify the literature of USR to the ED and its use as a quality indicator by researchers, by incorporating multiple perspectives and types of literature.

The methods of this literature review were established prior to commencement of this study, when it was realised that a considerable number of researchers had had papers published about different types of USR studies. A protocol to conduct the review was developed. In the protocol the definition of USR was developed, and the focus and boundaries of the integrative review were described. Then each step of the review process was identified, using the following headings: problem identification, search strategy, location of studies, evaluation of individual primary studies, extraction of data from individual studies and data analysis, and plan for synthesis of findings. The protocol was used as template for the integrative review and guided the research team throughout the review process.

The first objective of the protocol was to achieve problem identification that defines focus of the review. It was composed of statements that summarised the purpose of the study, the research question and the Population, Intervention, Comparator, Outcomes, Timeframe (PICOT). The search strategy, including relevant databases was identified. It demanded an exhaustive search, helped by databases with limiters. Then, after the search, the studies retrieved were evaluated. This is extremely important in the review because the quality of

papers included will help to define the quality of the review. Due to this, individual appraisal of documents is necessary. For instance, appraising for each retrieved paper - the clarity of research objectives, clear rationale for the sample, relevance, importance and useful findings and so on, to ensure that only relevant and credible research is included in the review. And the last point is considering and extracting the findings of the research or data analysis generated by each piece of research.

The combined extracted data when used for the integrative review should result in synthesis and conceptualisation or classification of the findings which is relevant to but advances previous knowledge.

2.3 Search Strategy

In this section of the chapter the search strategy is outlined in two steps using the headings 'from research question to PICOT' and 'from PICOT to databases and search terms'.

2.3.1 From research question to PICOT

The searchable question was stated as: How are researchers using the phenomena of USRs to the ED as a quality indicator?

The PICOT approach was used to operationalise the research question in preparation for systematic searching of the databases. PICOT (population, intervention, comparison intervention, outcomes, timeframe) approach was developed to assist systematic and focused searching of databases, and to support the grouping of evidence. Several authors (Huang et al. 2006, Bettany-Saltikov 2010a, Bettany-Saltikov 2010b) recognize the PICOT as a method that can be used to locate or define any issue where research is needed for clinical decisions based on evidence.

Element of PICOT	Operationalisation of PICOT
Population - P	P – People who present as an unscheduled return to the Emergency Department.
Intervention - I	I – Unscheduled return as an indicator of quality.
Comparator - C	C – None.
Outcomes - O	O – Categories of causes, categories of solutions.
Timeframe - T	T – Timeframe for USR classification as defined by the researchers. Published within the last 14 years (2000–2014).

Table 2: The Operationalised Elements of the PICOT

When a search strategy is defined by an initial PICOT, the process is assisted by the fact that writing the PICOT enables the researcher to identify the major elements of question, and then to consider how these can be translated from natural language terms into subject descriptors that can then be defined in data base terms. The PICOT elements used to guide and operationalize the search strategy for this study are presented in Table 2.

2.3.2 From PICOT to databases and search terms

Utilizing the PICOT, a list of synonyms or similar search terms were produced and used according to each appropriate database in research articles. All terms were searched combined or not with "OR" of titles, keywords, index terms, abstracts limited to year 2000 until current timeframe to ensure relevancy of the results, then they were combined using "AND" function. The reference list of all identified articles were searched for additional studies.

Initial searches

Initially the search terms were tested using the CINAHL Plus database by the operationalisation of the search terms to include the population, intervention, outcomes and timeframe from the PICOT. However this resulted in too few research papers being identified. Several combinations were tested and checked with the reference librarian. The failure to find a sufficient number of references led to a review of the suitability of PICOT as an aid for operationalising the research question. The use of PICOT in clinical topics is well established, however Huang et al. (2006) identify limitations with PICOT arguing that it can be difficult to structure a clinical question without modifying the PICOT format. As the research topic is based in the clinical sphere PICOT was used, however, its usefulness was limited, partly because the area of USRs to ED as a quality indicator does not sufficiently match the ways in which authors and researchers have described their work. This is perhaps characteristic of research into new emerging primary topics, such as USR.

Eventually, to achieve the best coverage of primary research papers, the research team decided that it would be necessary to search on population (USR) and ED setting, and then to manually check relevance according to the criteria for exclusion and inclusion after the searches had been undertaken. When considering the basis for this decision, it seemed that the rational explanation was because this was a new and emerging area – researchers and databases in the main had not classified the papers in relation to the intervention and outcomes that the integrative review had focused upon.

The database Scopus was chosen for the first search because it delivers an overview of the world's research output in the fields of science, technology, medicine, social sciences and arts and humanities. The terms used were “unscheduled returns” and “emergency department” which showed 120, 53 results respectively. Then, the terms combined with “AND” produced 46 results. Scopus search history is presented in Appendix 1.

Final searches

The final searches were undertaken in two different databases: CINAHL Plus and Medline. A summary of the searches appears in Appendix 1.

CINAHL Plus, the second database chosen, provides indexing for over 4,000 journals from the fields of nursing and allied health, with indexing back to 1937. CINAHL Plus covers nursing, biomedicine, health sciences librarianship, alternative/complementary medicine, consumer health and 17 allied health disciplines. The first search was conducted looking for terms “emergency department”, “emergency care”, “emergency”, “emergency medical services”, “emergency room” which were linked using “OR” providing 35,579 results. The second part of search was to use “unscheduled return*”, “return admission”, “return visit”, “repeat visit” as key terms linked with “OR”, which provides 210 results. Finally, the first and second search was linked with “AND” that produced 103 articles.

MEDLINE was chosen because it is a database of international literature of medical and biomedical areas produced by NLM (National Library of Medicine, USA) that has bibliographic references and abstracts of over 5,000 titles of journals published in the United States and 70 other countries. It contains articles references published from 1966 to current date, covering areas as medicine, nursing, dentistry, veterinary and related sciences. In MEDLINE, the first search was to find a list of synonym or similar search terms of emergency department that shows (MM "Emergency Service, Hospital") OR (MM "Emergency Medical Services") OR (MM "Emergency Medicine") OR (MM "Emergency Nursing") resulting in 21,988 articles. Then, the

next search was about the terms “unscheduled return*” OR “return admission” OR “return visit” OR “repeat visit” that shows 541 results. Finally, the first and second searches were linked using “AND” resulting in 117 articles.

2.4 Data Collection: Selecting Papers for Inclusion and Exclusion

The research papers and literature reviews identified through the search engines and databases were sorted using a three-stage process. The first stage was an initial check of title and abstract resulting in direct exclusion of those identified as not fitting the inclusion criteria, noting of duplications, and progression of the other papers to the next stage of the selection process. The second stage, was full retrieval of the remaining papers in electronic and hard copy formats and checks for fitting the inclusion criteria, this resulted in further exclusions. Papers that met the inclusion criteria were then checked for author credibility and journal quality criteria. Once the papers met these conditions, data from each was extracted in relation to study design, content about USR and relevant outcomes. The inclusion criteria are identified in Table 3.

Criteria for Assessing Eligibility of Papers for Inclusion in the Integrative Review
Papers discussing, researching, identifying the use, or reporting outcomes in relation to unscheduled returns (USR) to the Emergency Department (ED).
The papers will be related to adult USRs and acute care agencies/hospitals.
The researchers will have used USRs as an indicator of quality.
The researchers will have recorded, commented or used categories of causes, categories of solutions, or other outcomes in relation to USR.
The timeframe for USR classification will be as defined by the researchers.
The papers will be original research papers or literature reviews.
The papers will be published in academic journals.
The papers will have published abstracts and will be published in the English language.
The papers will be published between 2000 until 2014.

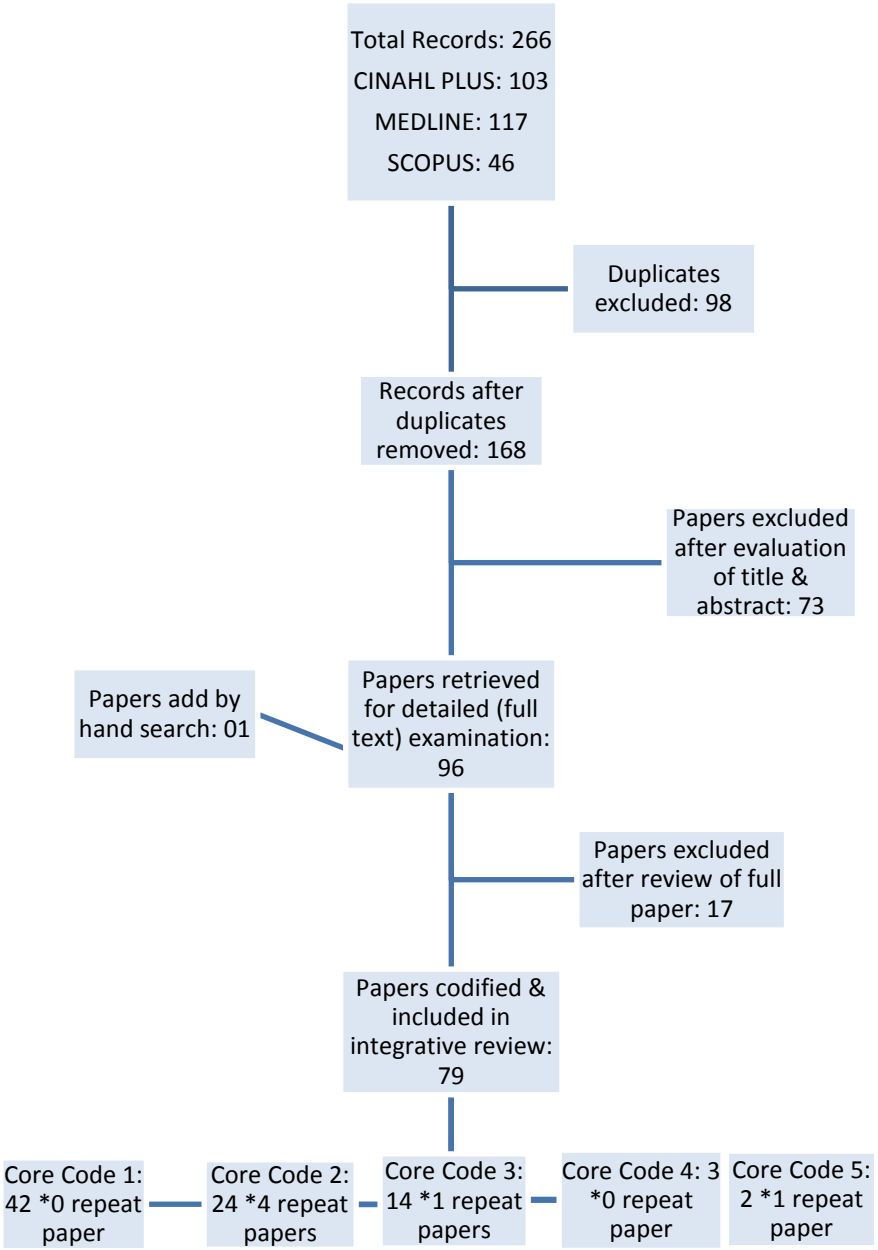
Table 3: Inclusion Criteria

In total 266 articles were identified of which 98 duplicate articles were excluded. Two reviewers assessed the titles and abstracts of the 168 articles search results independently. As a result, 73 articles were excluded because they did not correspond with inclusion criteria (Table 3). Then, 95 articles met the inclusion criteria and 1 additional was added after hand searching the reference lists of the identified papers.

Full text papers were obtained for those that were determined potentially relevant (96 papers), and these were also screened against the inclusion/exclusion criteria. The papers

were independently appraised, then cross-referenced to ensure consistency. Any disagreements between reviewers were resolved by discussion. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram for the retrieved, excluded and included papers is presented as Figure 1.

Figure 1: PRISMA Flow Diagram for Retrieved, Excluded, and Included Papers



2.4.1 Initial assessment of fully retrieved papers for inclusion

Papers selected for full retrieval were assessed by two of the researchers for general academic credibility and journal quality, research design and USR relevance, prior to inclusion in the review. An inclusion criteria assessment form was developed (Table 4), and then completed for each individual research paper (Appendix 2).

Criteria	Yes	No	Unsure
Population Paper about USR to the ED Adults Not a mental health institution			
Intervention USR as a Measure of Quality and/or as Quality Indicator Definition and/or Context and/or Purpose for Use			
Outcomes Rate of USR Other:……			
Time-frame Time Definition of USR Published between 2000-2014			
Author Standing Area Expertise Research & Publication Track-record			
Journal Quality Peer-reviewed Impact Factor/JCR and/or Journal Ranking			
Context Specific Information Country/County or State - Research Setting			
Type of Research Design Name:			
Acceptance for Inclusion Reviewer 1 Reviewer 2			

Table 4: Inclusion Criteria Assessment Form

2.4.2 Data extraction from the included papers

Following completion of the inclusion assessment form, all included papers then had data extracted and entered onto a spreadsheet; these details are identified in Appendix 4.

Information category	Details of information sought
General Academic Credibility	
Authors & Title	Provide authors names & title of paper.
Author standing	Comment on the authors, their standing in this area of research or practice, & the extent they are cited by others.
Year	Provide year of publication
Journal	Provide name of journal & comment on what standing the journal has in the international & national health community
	Comment on peer-review, & ISI classification or ranking or journal citation reports.
Country	Provide country where research conducted & comment on similarities & differences in the research setting compared with your location.
Population	Describe the population studied & comment on the similarities & differences compared with the population in your scenario/background.
Scientific reasonableness	Note the study design/research approach for research paper (note prospective or retrospective data collection, & time-frame for data-gathering); note the literature review approach for reviews/note discursive for discussions.
	Comment – report on the strength of the scientific design.
Report the main objectives of the paper/research/review: Summarise these.	
USR information	
Data Extraction - Content	Report the way that unscheduled returns to the ED have been defined.
	Report on the purpose of unscheduled returns as used in the paper.
	Comment on the type of quality indicator related to unscheduled returns.
	Comment on the outcomes in relation to unscheduled returns.
Decision re classification: Report the final include/exclude decision & rationale.	

Table 5: Example Headings and Tasks for Data Extraction

Data was extracted from the papers included in the review by using a specifically designed extraction tool/table as summarised in Table 5. The results are reported in Appendix 4.

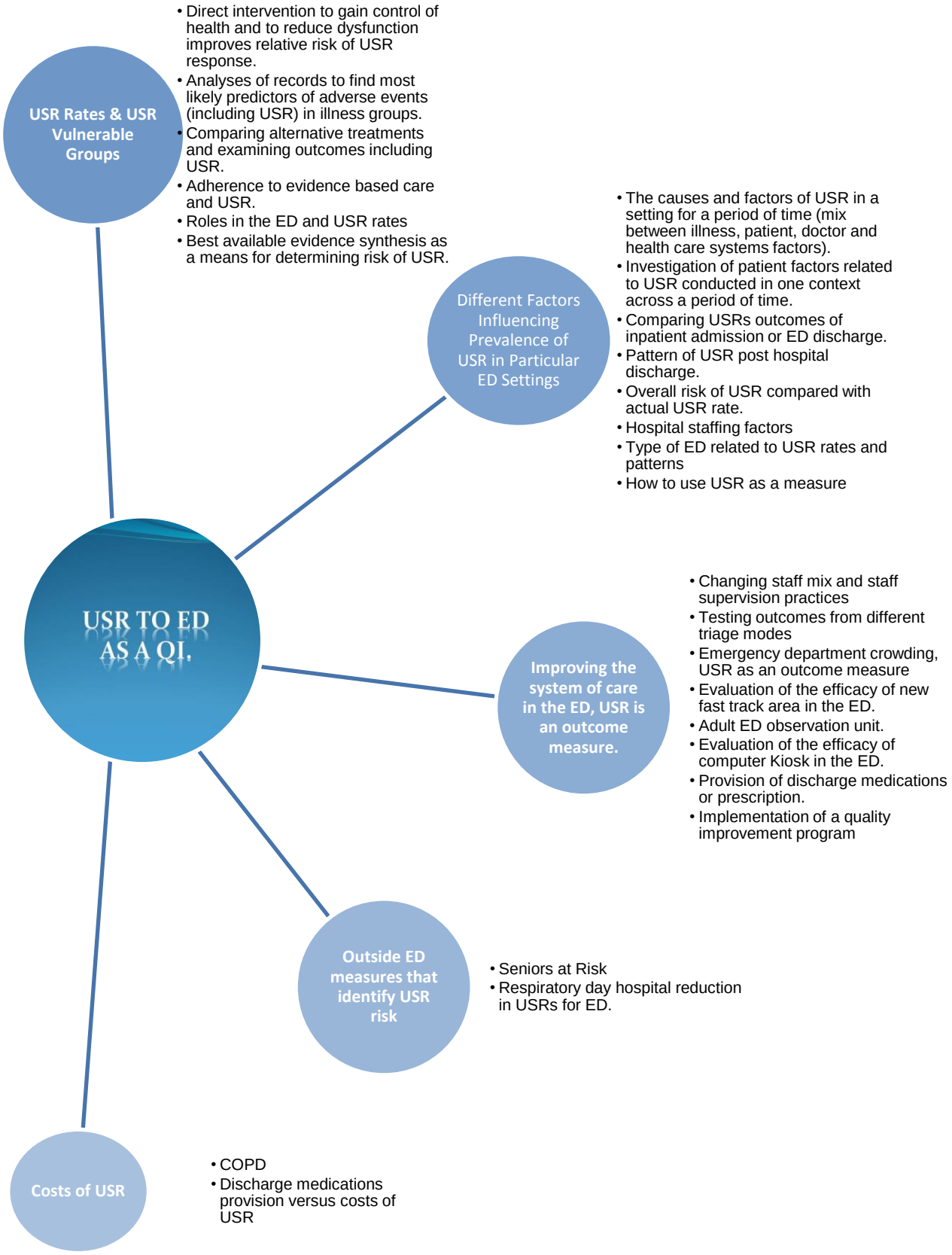
2.5 Data Classification and Synthesis

General codification and thematic classification for types of uses (and outcomes) associated with using USRs to the ED as a quality indicator was undertaken. The classification emerged from inductive clustering of the extracted data. There was sufficient heterogeneity in the data to populate different core-codes and sub-categories; there was also sufficient homogeneity to populate findings within these core-codes and sub-categories. All findings are reported as a classification and with an accompanying narrative. The processes used were consistent with

integrative review methods, and they did result in thematic conceptualisation of the current field/literature relevant to the review objectives.

Five core-codes each with sub-categories which we named as branches were identified. Two of the core-codes were more heavily populated and saturated by the extracted data, and these are discussed with some confidence in Chapter 3. The remaining three core-codes, were less populated and less saturated, by the extracted data thus they are indicative only. These findings are reported in Chapter 4 as indicative codes. To assist the reading of the results (Chapter 3 and Chapter 4) a figurative diagram of the core-codes and related branches is presented in Figure 2 below. The first core-code was identified as 'USR rates and USR vulnerable groups' and as the diagram below reveals this had six branches; the second core-code 'different factors influencing prevalence of USR in particular ED settings' (eight branches); the third core-code 'improving the system of care in the ED, USR as an outcome measure' (eight branches); the fourth core-code 'outside ED measures that improve ED risk' (two branches) and the fifth core-code was 'USR costs' which also had two branches.

Figure 2: Classification of USRs as a Measure of Quality



2.6 Summary

In summary, in this chapter the methodology of the study has been outlined. The methods used in this integrative review consisted of a systematic search of published literature using search terms derived from a PICOT model and a structured question. Moreover, the methods of data appraisal and extraction were used to assist the inductive and systematic codification of the extracted data. These results are presented in the following chapters.

Chapter 3: USR as a Quality Indicator: USR Vulnerable Groups and USR prevalence

In this chapter the findings from the analysis of the included papers is presented. As stated in the previous chapter the analysis resulted in the identification of five core categories for which USRs to the ED have been used as a quality indicator in the ED. Findings related to two of these core-codes are presented in this chapter, they are 'USR rates and USR vulnerable groups' and 'factors influencing the prevalence of USR rates in EDS'.

When undertaking the analysis and classification of the data, these two core codes attracted the majority of the included papers (77.6% overall; 49.4% and 28.2% respectively). There were factors that naturalistically led to these papers being clustered together and into two core-codes. Overall for the classification into the core-codes the papers had clear points of distinction that led to the coding, and good saturation was attained for each core code. The branches as presented here are more indicative of trend and focus than saturated. The findings for the core-codes and the branches are presented in the remainder of this chapter.

3.1 Core-code 1: USR Rates and USR Vulnerable Groups

Considerable attention has been given to investigating the care and treatment of certain clinical populations who are likely to have higher USR rates. Analysis of the papers identified a large number (42 papers; 49.41%) where the focus was advancing treatments and interventions treatments for high risk patients who were vulnerable to USR to ED.

Due to the need to understand who these vulnerable groups were, their needs and risk, and also methods that researchers used in relation to USR as a quality indicator, the papers from this first core-code was codified into six branches as presented in Table 6.

Core-code 1: USR Rates & USR Vulnerable Groups	
Branch	***Papers addressing this aspect of USR***
1.1 Branch: Direct intervention to gain control of health and to reduce dysfunction improves relative risk of USR response.	McCusker, 2000; Harrison, 2002; Sin, 2002; Aaron, 2003; McCusker, 2003; Shaver, 2004; Lee, 2008; Miller, 2008; Touquet, 2008; Salvi, 2009; Hollingworth, 2013
1.2 Branch: Analyses of records to find most likely predictors of adverse events (including USR) in illness groups.	Rame, 2001; Ross, 2003; Quinn, 2004; Chiu, 2007; Hasting, 2007; Birbaum, 2008; Hastings, 2008a; Hastings, 2008b; Patel, 2009; Rowe, 2009; Vanbrabant, 2009; Ross, 2010; Rosychuck, 2010; Tsai, 2010; Barrett, 2011; Huang, 2012; Geirsson, 2013; Yeatts, 2013
1.3 Branch: Comparing alternative treatments and examining outcomes including USR.	Salvi, 2008; Ferre, 2009; Wells, 2009; Stein, 2011; Salvi, 2012; Feldman, 2013
1.4 Branch: Adherence to evidence based care and USR.	Metlay, 2007; Brede, 2010; Birkhahn, 2012; Calder, 2014
1.5 Branch: Roles in the ED and USR rates	Guttman, 2004; Horney, 2012
1.6 Branch: Best available evidence synthesis as a means for determining risk of USR.	Von Besser, 2011

Table 6: USR Rates and USR Vulnerable Groups: Sub-categories/Branches

Definitions for time to USR in this core-code varied quite widely between different researcher groups. Across core-code 1 the range was from 72 hours to 6 months, with the mode being 30 days (17 papers). When the branches were studied for consistency and variation in time to USR the following data was attained:

- Branch 1.1 the range was from 72 hours to 6 months, with one paper using 30 day and 6 months measures, the mode was 30 days.
- Branch 1.2 the range was from 48 hours to 90 days, the mode was 30 days.
- Branch 1.3 the range was from 14 days to 30 days, with one paper using both 30 day and 6 months measures, the mode was 30 days.
- Branch 1.4 the range was 2 weeks to 90 days, and the mode was 30 days.
- Branch 1.5 the two papers used 14 days and 90 days.
- Branch 2.6 the one paper used 48 hours.

3.1.1 Branch (1.1): Direct intervention to gain control of health and to reduce dysfunction improves relative risk of USR response

Researchers and medical teams coded into this branch measured their health and treatment intervention outcomes using USR as one of the indices. For example, physicians working with vulnerable populations to improve the health of their groups would often try a drug or treatment intervention and use USR as a measure. The measure was used in the spirit of the

following question: 'Did the USR remain the same or get better as the intervention was implemented?' Eleven papers using this type of intervention and measure were identified.

Four of the papers focused on the administration of drugs as form of treatment for a disease. Aaron et al. (2003) and Harrison et al. (2002) utilized different treatments in ED with drugs for patients with chronic obstructive pulmonary disease (COPD) and dyspnea; and then measured their USR rates post index visit to assess the effects of the treatment (one of several measures). Both studies found a significant decrease in repeat visits to the ED in the group who received the drugs in the clinical trials medicine treatments. Miller et al. (2008) and Hollingsworth et al. (2013) compared two models of treatments with drugs using USR rates as an evaluation of the best results. Miller et al. (2008) found higher number of return visits to the ED or hospitalization in the group that was using experimental therapy for renal stones in comparison with those using standard therapy alone. Hollingsworth et al. (2013) found in their study that men that underwent medical expulsive therapy are more likely to have a USR to the ED visit compared to those who underwent endoscopic stone removal.

Sin et al. (2002) examined the relationship between follow-up office visits after emergency discharge and the risk of readmission in patients with asthma or COPD based on USR rates. They suggest that follow-up office visits are effective in reducing early relapses (and USR rates) in patients who have been recently treated in EDs for asthma or COPD.

Four papers aimed to identify patterns of 'seniors' who have risk of repeat visits. Salvi et al. (2009), McCusker et al. (2000) and Lee (2008) focused on evaluating a screening tool used to predict USR to ED. According to Salvi et al. (2009) and McCusker et al. (2000) the tool Identification of Seniors at Risk (ISAR) was positive in identifying elderly patients at risk to repeat visits to the ED. However, Lee (2008) argues that Triage Risk Screening Tool (TRST) demonstrated only moderate predictive ability. Moreover, they suggest that a better prediction rule should be sought that incorporates including the TRST and ISAR tool, and to assess the effect of any new prediction rule on patient outcomes. Seniors who receive continuity of care are less predisposed to return to the ED than those who receive any intervention outside ED. For instance, home care is an option for beneficial results against USR to the ED (McCusker et al. 2003).

Shaver et al. (2004) researched patients with potential coronary syndrome to identify whether negative findings of underlying coronary artery disease in admitted patients would result in a decrease in USR as compared with patients who were not evaluated for underlying coronary artery disease. They found both groups had similar likelihood of USR to the ED.

Touquet et al. (2008) conducted a prospective cohort study of patients admitted to the resuscitation room in ED due to collapse from issues that were secondary to alcohol or drug intakes. They found that these patients had high USR rates, and recommended the opportunity for feedback when sober, to ensure that all is done to encourage patients to contemplate change, and to reduce re-attendance as well.

3.1.2 Branch (1.2): Analyses of records to find most likely predictors of adverse events (including USR) in illness groups

The second branch was applied to researchers who used analyses of records (mainly retrospective) to focus USR as predictors of adverse events (including USR) in an attempt to target possible interventions to reduce incidence. Patients who are commonly visitors in the EDs were often studied to discover if they had a higher risk of USR to the ED. Studies regarding these risks in patients with COPD, heart diseases, and in elderly patients were found in the 18 papers nested in this branch code.

People with COPD have significant health issues that often lead them to require ED care. According to Yeatts et al. (2013) among patients with COPD in 2008 to 2009 in North Carolina, 97,511 had related ED visits; and 7% and 28% had a COPD related return ED visit within a 30 and 365 day periods of their next visit, respectively. Rowe et al. (2009) studying an asthmatic population, found 6.4% of these 48,942 ED patients had a USR to ED visit within 7 days of the index visit. Additionally, Patel et al. (2009) used USR rates to the ED to compare smoking and nonsmoking patients with acute asthma. Both the USR rates and other measures presented such as medical conditions demonstrated no statistically significant differences between smokers and nonsmokers in this study.

People with heart diseases also frequently present in the ED, but not much is known about their adverse advents leading to actual USR ED visits. Two retrospective analyses discovered some likely predictors of adverse events in these populations. Barrett et al. (2011) found an association between an increased risk of a 30-day adverse event (resulting in USR) in ED patients with symptomatic atrial fibrillation, increased age, inadequate ED ventricular rate control, dyspnea, smoking, and beta-blocker treatment. Rame et al. (2001) found a high rate of failure of outpatient therapy in patients discharged with a primary diagnosis of chronic heart failure (CHF) and identified that an increased respiratory rate on presentation to the ED was a risk factor for adverse outcomes (including USR) after ED discharge for CHF.

Older patients have distinct patterns of service use and care need including ED visits. For example, diagnoses such as chest pain, dehydration, syncope, back pain, and chronic obstructive pulmonary disease are common in the elderly population (Ross et al. 2010) suggesting this population is at risk of serious adverse outcomes (resulting in USR). For example, according to Hastings et al. (2008a) 32.9% of 1851 subjects discharged from the ED experienced an adverse outcome resulting in USR, hospitalization, nursing home admission, or death within 90 days of the index visit by elderly patients. However a study by Hastings et al. (2008b) appears to contradict these findings, as they found that degree of frailty and repeat ED visits within 30 days do not have statistically significant association. Ross et al. (2010) also found that USR rates between elderly and younger groups were similar. Hastings believes that a tool for predicting older adults with greatest risk interventions could be developed to reduce undesirable events (Hastings et al. 2007).

People with pneumonia were identified as presenting commonly with USRs to the EDs, however not much is known about the interrelated factors that might cause this phenomenon. Quality of care and patient characteristics were searched for possible relationships, but no significant results regarding this were found by Huang et al. (2012), Rosychuk et al. (2010).

Another group at risk of adverse events, are those people who suffer from syncope. According Quinn et al. (2004), syncope is an indication of serious outcomes and USR to ED. Therefore, identification of health conditions related to syncope such as abnormal ECG, anemia, dyspnea, systolic hypotension, history of congestive heart failure will help targeted prediction of USR patients presenting with syncope to the ED. Birnbaum et al. (2008) identified that people presenting to ED with syncope have a high risk of repeat USR, however the researchers identified that the current risk-stratification tool is not sufficiently sensitive to predict serious outcomes for these patients, including USR to the ED.

Pain is a common complaint of people who make USRs to the ED. It can be a manifestation that represents an unfavorable progression of illness. Although in a majority of patients pain is not predictable, often in cancer the pain can be predicted and managed. Tsai et al. (2010) argued that some cancer pain can be better managed and avoid the USR cycle, every time that pain re-occurs.

Wrong diagnosis can be a cause of USR to the ED. Vanbrabant and Knockaert (2009) argue that it can occur because of overcrowding in the ED, especially when ED medical staff have insufficient time to complete patient evaluations and need to facilitate rapid discharges. These

researchers also identified that people presenting with abdominal pain is one the principal complaints that can be wrongly diagnosed and a principal cause of USRs.

Geirsson et al. (2013) compared patients who left the ED against medical advice with patients who completed their ED visits. Patients who do not receive medical advice had a higher predisposition to USR to the ED, because their continuity of care was compromised. In addition Chiu et al. (2007), identified that pre and post discharge care are important approaches to avoid USRs to the ED. They found that a community nursing service can ensure safe patient discharge through optimising healthcare practices that link hospitals with community services to the patients home.

3.1.3 Branch (1.3): Comparing alternative treatments and examining outcomes including USR

A common form of scientific experimentation is the comparison of groups. It is vitally important that the researcher decides what comparative tests and designs to use for a particular analysis in order to determine best outcomes and correct clinical decisions. Five papers were found utilizing USR to ED as a measure in studies of comparison. These comparisons were made of different forms, such as: between alternative and standardised treatments, between a treatment and a control, or a before and after comparison.

Although the subjects of papers are also distinct, all of them use USR and other outcomes to find differences. For example, Ferre et al. (2009) and Wells et al. (2009) compare groups (alternative and standard) to learn about efficacy of alternative treatment with new drugs. Both studies found insignificant differences between the studied groups. In addition, health services were also evaluated using comparisons. For instance, a new technology in a health system, the computer kiosk was evaluated in a randomized controlled study of expedited versus usual ED care. The Kiosk program attained more safety and efficiency and improvement in the ED patient flow (Stein et al. 2011). Systems of triage such as Identification of Seniors at Risk (ISAR) and Triage Risk Screening Tool (TRST) were compared as well and results demonstrate that ISAR had slightly higher sensitivity and lower specificity than TRST (Salvi et al. 2012). A comparison between a conventional ED and a geriatric ED (GED) revealed that GED may provide better care for older people than a conventional ED (Salvi et al. 2008).

Continuity of care with closer monitoring in the community context can be an effective way to minimise deterioration secondary to disease, decrease USR and improve health outcomes. One example is a recommendation of monitoring for adverse events in discharged ED patients with

heart failure. A unique study by Feldman et al. (2013) showed that while all patients with heart failure were followed up within the same recommended timeframe of two weeks, patients with medical follow-up as opposed to follow-up by post ED visit had fewer adverse events including USR (Feldman et al. 2013)

3.1.4 Branch (1.4): Adherence to evidence based care and USR

The impact of the adherence to evidence-based practice (EBP) is commonly analysed in relation to patient outcomes and cost. Four papers evaluated these impacts by evaluating the proportion of adverse events including USR experienced by patients as a result of adherence or limited adherence to EBP. Calder et al. (2014) identified critical actions (EBP) for heart failure and COPD patients. They identified that 9.8% of the adverse events (including USR to ED) were likely to have been preventable by clinical adherence to the critical actions (EBP). Brede et al. (2010) created more uptake of EBP by conducting a targeted education of emergency department physicians in a new form of treatment to ureteral calculi. They identified a positive impact from this that they believe resulted in lowering the USR to the ED rates for this population of ED presenters. Birkhahn et al. (2012) focused on the importance of a protocol using a rapid cardiac disposition to prevent serious outcomes. They found that the measure had impact in improving patient flow, reducing resource utilization, reducing length of stay and also reducing USRs to the ED.

While Calder et al. (2014) evaluated an educational program of staff to reduce antibiotic overuse for acute respiratory tract infections, Metlay et al. (2007) assessed patients for adverse events of COPD and heart failure according to the adherence to evidence-based care. Both included USR combined with other outcome measures and results revealed some relationships between evidence adherence and USR rates.

3.1.5 Branch (1.5): Roles in the ED and USR rates

In an attempt to discover how the roles of professionals and each health sector affects the ED, researchers used USR rates to measure the impact of each one. Two papers address research into relationships between health professional roles in the ED and USR rates. Both studies relate to transitions between primary care and ED care using USR rates. For instance, an ED-based nurse discharge plan coordinator, dedicated specifically to the discharge planning care of elder patients was found to have a lower proportion of ED revisits and to facilitate the persons' transitions from ED back home and into the community health care networks (Guttman et al. 2004). However, adults who receive significant amount of primary care

physician visits without home care support, may still have a high risk of USR to ED (Horney et al. 2012).

3.1.6 Branch (1.6): Best available evidence synthesis as a means for determining risk of USR.

A sixth and final branch, has insufficient papers to verify whether it is an additional branch, or whether it may in the future be more appropriately re allocated elsewhere in the classification. In the meantime, the paper was sufficiently different to warrant this additional sub-category classification. von Besser and Mills (2011) undertook a best available evidence synthesis of five papers that reported outcomes after patients were discharged to home after cardioversion for atrial fibrillation in the ED. They noted that across these studies USR rate for relapse is between 3-17%. On this basis they suggest that patients be advised of the potential for a relapse and be given strategies to respond should this occur. von Besser and Mill's paper was the only best evidence synthesis study that examined USR in specific conditions, identified in this particular integrative review.

3.2 Core-code 2: Different Factors Influencing the Prevalence of USR in Particular ED Settings

USR is commonly used as a measure for general screening of clinical quality issues in the ED. Moreover, as it is commonly assumed as an adverse event for patients, this may mean that USR is a reflection of something wrong in the service.

A large number of publications (24 studies; 28.2% of all included studies) were classified into the core-code 2 and these contribute to knowledge about methods of using USR approaches to investigating quality issues in the ED. Additionally, some papers of this core-code are not only about identifying different factors influencing USR, but also about identifying the prevalence of USR in an ED setting.

The papers from this second core-code were codified into new branches based on different implications for how the researchers used USR as an indicator of quality such as illness, patient, doctor and health care systems factors. Other research papers were related to overall risks of USR and how to use USR as a measure. The eight branches identified in this core-code, each have different degrees of saturation. The branches are discussed in this section of the chapter, and they are presented in Table 7.

Core-code 2: Different factors influencing prevalence of USR in particular ED settings	
Branch	***Papers addressing this aspect of USR***
2.1 Branch: The causes and factors of USR in a setting for a period time (mix between illness, patient, doctor and health care systems factors).	Nunez, 2006; McCusker, 2007; Kuan, 2009; Imsuwan, 2011; Khan, 2011; McCusker, 2012; Verelst, 2014
2.2 Branch (2.2): Investigation of patient factors related to USR conducted in one context across a period of time.	Viner, 2000; Martin-Gill, 2004; Moore, 2007; LaMantia, 2010; Naughton, 2010; Ross, 2010; White, 2011; Kirby, 2012
2.3 Branch: Comparing USR outcomes of inpatient admission or ED discharge.	LaMantia, 2010; Hu, 2012
2.4 Branch: Pattern of USR post hospital discharge.	Rising, 2013
2.5 Branch: Overall risk of USR compared with actual USR rate.	Sauvin, 2013
2.6 Branch: Hospital staffing factors	Silbergleit, 2006
2.7 Branch: Type of ED related to USR rates and patterns	Salvi, 2008; McCusker, 2012;
2.8 Branch: How to use USR as a measure	Abualenain, 2013; Trivedy, 2013

Table 7: Different Factors Influencing Prevalence of USR in Particular ED Settings: Sub-categories/Branches

Definitions for time to USR in this core-code varied between researchers. Across core-code 2 the range was from 24 hours to 6 months, with the mode being shared at 72 hours (6 papers) and 30 days (6 papers). When the branches were studied for consistency and variation in time to USR the following data was attained:

- Branch 2.1 the range was from 48 hours to 30 days, the mode was 72 hours.
- Branch 2.2 the range was from 72 hours to 6 months, the mode was shared jointly between 72 hours (2 papers) and 28 days (2 papers).
- Branch 2.3 the two papers used 72 hours and 30 days.
- Branch 2.4 the one paper used 30 days.
- Branch 2.5 the one paper used 8 days.
- Branch 2.6 the one paper used 48 hours.
- Branch 2.7 the two papers used 30 days, one paper also used data at 6 months.
- Branch 2.8 the two papers used 24 hours and 72 hours.

3.2.1 Branch (2.1): The causes and factors of USR in a setting for a period of time (mix between illness, patient, doctor and health care systems factors)

USRs to the ED can contribute to ED overcrowding as well as compromise the quality of patient-care. Therefore, auditing the return visits charts of patients who returned in a specific period of time is a very important method of quality assurance because it can be related a

several causes and factors, such as illness-related factors, patient-related factors, doctor-related factors, and health care system-related factors (Nuñez et al. 2006). Five studies provided important insights into these factors and the mix between them.

A retrospective observational study (Imsuwan 2011) of USRs to the ED across a 12 month period found an average of 0.92% of patients had USRs. Differentiation of factors revealed that USR was related to factors of illness (60.6%), patients (8.5%), doctors (28.3%) and healthcare systems (2.6%). Khan et al. (2011) using retrospective chart review (12 month period) studied the incidence (2%), causes (fever-29%), and factors associated with USR in a low-income country. They found that triage categories 1 and 2 and patients leaving against medical advice were important factors in USR. Kuan and Mahadevan (2009) retrospectively studied USR data for six months. They found a USR rate of 2.2% and that patients between 21-30 years had the highest proportion of USR (29.8%), abdominal pain was the most frequent complaint, and that there were significant differences in the unscheduled return rates between the senior (lower USR rate) and junior doctors (higher USR rate). Verelst et al. (2014) found that despite USR generating additional work in the ED, USR to the ED is not related to ED over-crowding. These researchers found that USRs are most commonly created by patients who are experiencing deterioration or progression of their chronic diseases; and that alcohol misuse is also one of the common reasons for USR to the ED.

Another important factor in relation to an increase of USR to the ED is hospitals conditions because the ED is part of a health system in which all interconnected departments can affect each other in a small or big proportion. Multivariate analysis of USR presentations in the elderly identified that hospital overcrowding and physical resources such as size of ED, lack of social worker in the ED, no geriatric unit in the ED are examples that can cause higher USR rates to the ED (McCusker et al. 2007). Nuñez et al. (2006) investigated the characteristics of USR patients over the age of 65 to determine differentiating elements of that cohort. The research team found differences between elderly USR and other USRs, and between elderly USRs and elderly non-USRs, and argues that more differential analysis work about USRs needs to be undertaken.

3.2.2 Branch (2.2): Investigation of patient factors related to USR conducted in one context across a period of time

The patient profile related with USR can provide a basis for distinguishing between other groups of frequent ED patients. Some studies identified the importance of being able to accurately predict USR among different groups of patients, particularly in providing early

identification for those patients who are at risk of USR to the ED. These researchers argued that such findings will support the development of future prevention strategies and improve health service interventions that are aimed at minimising high-risk USRs to the ED.

Eight papers that argued the importance of identifying individuals at risk for early USR, reported their findings in relation to socio-demographic and clinical characteristics such as age, sex, race, health insurance status, and initial diagnosis. Although patient characteristics associated with unplanned return visits were identified, all researchers agree that the reasons sustaining the USR rate need to be more fully investigated. LaMantia et al. (2010) believe that USR to the ED cannot be predicted with certainty, because there is a difficulty in tracing the profile of patients who are at risk of repeated visits. Martin-Gill and Reiser (2004) highlight that USR risk identification is a priority and needed to assist in development of targeted prevention strategies. Naughton et al. (2010) highlighted the importance of medical background information, and interaction between health services as one of the fundamentals factors to identify USR risk.

People with social needs such as the homeless and government pensioners were identified as a group prone to return to the emergency department (Moore et al. 2007). Ross et al. (2010) argue that some health conditions are commonly seen in USRs to the ED, among them are: headache, back pain, abdominal pain and chest pain. Moreover chronic health conditions represent a considerable parcel of repeat visits to ED (White et al. 2011).

Martin-Gill and Reiser (2004), White et al. (2011) cite mental disorder, genitourinary system, digestive system (gastrointestinal especially) and symptom-based diagnoses as the diagnoses which have greatest risk of re-presentation to the ED. Elderly patients are more likely to have repeated visits to the ED (Kirby et al. 2012, Martin-Gill and Reiser 2004). Viner et al. (2000) also recognized that an important patient factor, is that people should know where they should and can go for care and treatment. For example, some conditions can be managed in ambulatory care which reduces and also avoids repeat visits to the ED.

3.2.3 Branch (2.3): Comparing USR outcomes of inpatient admission or ED discharge

A smaller branch, in that only two papers were identified, was concerned with comparing USRs to the ED outcomes between patients discharged or admitted post USR assessment. Hu et al. (2012) studied these differences over a two month period. They found that the USR rate was 3.1% and that the most common reason for a USR was an illness factor. Interestingly, these authors also found that ED staff experience and ED crowding, were not factors that influenced

the admission rate of USR to ED attendees. LaMantia et al. (2010) investigated similarly in relation to USR outcomes for elderly patients. Both groups of researchers found that probability of admission post USR to the ED were related to age (old age more likely), triage scores, heart rates, diastolic blood pressure and heart disease (Hu et al. 2012, LaMantia et al. 2010).

3.2.4 Branch (2.4): Pattern of USR post hospital discharge

Papers in which researchers evaluated USR to the ED in relation to various presentation factors were found more often than papers in which researchers were seeking to identify preventive measures for this. Rising et al. (2013) were concerned with the importance of understanding post in-patient discharge that resulted in an USR within 30 days, they studied retrospective data and found a high USR to ED (23.8%). They identified that more studies regarding this incidence need to be conducted as this issue is under-studied and under-reported.

3.2.5 Branch (2.5): Overall risk of USR compared with actual USR rate

Sauvin et al. (2013) wanted to test a hypothesis that people making USRs to ED are disproportionately likely to need an admission as an inpatient or suffer short term mortality. The researchers conducted a 1-year retrospective analysis of USR data (2% USR rate) and found eight variables associated with adverse events in USRs (age over 65years; previously diagnosed cancer, heart disease, psychiatric disease; presences of a relative; referral letter from a general practitioner (GP), and high triage scores). Based on these findings Sauvin et al. (2013) believe that USR triage scores should be systematically upgraded for USR patients.

3.2.6 Branch (2.6): Hospital staffing factors

One key paper investigating the influence of hospital staffing factors on USR rates was located. Silbergleit et al. (2006) explain that humans are prone to errors when work effort is more than human capacity, for instance, excess of hours of work on night shift. In their research they retrospectively studied the impact of night shift compared to day shift in the ED on USR rates. Although comparing day-work with night-work had a smaller incidence of early mortality, no statistically significant difference in USR to the ED was associated between day and night shifts. The authors identify that more studies are necessary to compare different staffing arrangements for their impacts on USR rates to the ED.

3.2.7 Branch (2.7): Type of ED related to USR rates and patterns

Locality, size, audience, and affiliation can classify EDs. There is little information available about the comparison between USR rates and outcomes associated with different types of EDs. However, a study (McCusker et al. 2012) undertaken in Canada, compared outcomes for seniors in three different types of EDs. They found differences in outcomes and types of EDs and different presentation patterns for the elderly in specialized EDs (highly, medium and least specialized). They (McCusker et al. 2012) found that elderly people treated at more specialized EDs were less likely to make an USR.

Salvi et al. (2008), advocate about the importance of individualized care, in specific patient groups, such as geriatric EDs. To support the hypothesis a comparison, using USR, between conventional ED and geriatric ED was made. Results demonstrated no difference in terms of early, late, or frequent ED revisit; however, it suggested a slight superiority for the geriatric ED in the acute care of older patients, proving that ED facilities specially designed for elderly people may provide better care.

3.2.8 Branch (2.8): How to use USR as a measure

After reading research papers reporting factors related to USR to the ED, several papers identified how to use USR as a measure. The objective of ED care is to provide the first care need, the patient should then continue the treatment with another service, preventing patients from USR to the ED. USR can be used for internal or external quality measurement purposes (Abualenain et al. 2013). Early USRs to the ED are used for quality assurance because a percentage of them may be preventable or managed differently at the index visit. The principal preventable causes are due to a wrong diagnosis, a wrong choice of initial disposition, or poor discharge planning. Abualenain et al. (2013) undertook a retrospective review of USR records from three hopsitals over a five year period, and graded the index hospital visit as either low quality or not low quality. They found a USR rate of of 0.5% and low quality index visits in 5% of these. They argue that their findings suggest that quality analysis of USRs to EDs should include chart reviews using similar processes.

Repeat visits to the ED may be an important quality indicator of performance of individual clinicians as well as organizations and systems responsible for delivery of emergency care. However, in order to develop a reliable and reproducible indicator, it is essential that there is consensus view on how USR are defined and how it can be used as a quality indicator. Trivedy and Cooke (2013) produced an important rapid evidence assessment policy review of adult USRs to the ED. They used SCOPUS and PUBMED databases to search for USR data. They were

particularly interested in the question of what current levels of USR are internationally for EDs, and whether there was sufficient agreement for a quality indicator or national threshold for USRs to be set for England. They found many inconsistencies in definitions and USR rates.

3.3 Discussion and Conclusion

In this chapter it has been reported that adult USRs to the ED are being used as measure and/or as an indicator of quality in two conceptual ways, these are 'USR rates and USR vulnerable groups' and 'factors influencing the prevalence of USR rates in the ED. Of the papers included in this integrative review of the literature, 77.6% of them classified into these two groupings. Some branches for each were identified (six and eight respectively). However not all these branches were sufficiently saturated with data for confidence in their definition and robust distinctiveness. For example in the core-code 'USR rates and USR vulnerable groups' the first two branches are well saturated (1:1=11 studies, and 1:2=18 studies respectively), the third branch is moderately saturated (1:3=6 studies) while the remaining three branches are indicative only (1:4=4 studies, 1:5=2 studies, 1:6=1 study), and may well eventually be collapsed into the preceding branches (1:1-3). Similarly in the core-code 'factors influencing the prevalence of USR rates in the ED' the first two branches are moderately saturated (2:1=7 studies, and 2:2=8 studies respectively), while the remaining branches are indicative only (2:3, 2:7=2 studies, and 2:4-6=1 study in each and 2:7-8=2) and these may well eventually be collapsed into the preceding branches (2:1-2). This unevenness in saturation and research emphasis is probably typical for new and emerging areas of research like USR to the ED.

A further point of interest is that while there was wide variation in the time to USR used by the researchers and there were some differences in range between categories and in their respective branches, the mode time to USR for Core-code 1 was 30 days, and for Core-code 3 it was bimodal at 72 hours and 30 days.

The integrative review findings are interesting, and given that only limited literature reviews and no systematic review was located, these findings do require further and higher level synthesis. It is the belief of the researchers that systematic reviews could be undertaken in relation to each of core-codes identified in this chapter.

Chapter 4: USR as a Quality Indicator: Improving the ED System of Care, Outside ED Measures of USR risk, and the Costs of USR

Incorporated throughout this chapter are the summary findings in respect of the three remaining core-codes. They are distinct areas that emerged from the thematic analysis about what was important about USRs to the ED as a quality indicator. The first of these is about improving the system of care in the ED using USR as an outcome measure, the second is about outside ED measures that identify USR risk, and the third area is about the costs of USR.

4.1 Core-code 3: Improving the System of Care in the ED, USR as an Outcome Measure

In recent years, the pressure on the health sector for quality of care delivery within set standards and with measurable outcomes for patients has become high and normative. Quality within health care systems has become important all over world. The reason may be that the service is not efficient and effective enough to meet consumer expectation. Researchers, and health professionals look for areas that can be improved. Core-code 3 will demonstrate that researchers in the ED often propose changes or modification in the general systems of care in the ED and use USR as an outcome measure to show that quality has improved or not been adversely affected by the change. Analysis of the papers identified 13 that were focused on improving a system of ED care using USR as an outcome measure. These were codified into 8 branches, which reflect different types of innovations that EDs have been undertaking for this purpose and are presented in Table 8.

Core-code 3: Improving the system of care in the ED, USR is an outcome measure.	
Branch	***Papers addressing this aspect of USR***
3.1 Branch: Changing staff mix and staff supervision practices	Salazar, 2001; Bernstein, 2002; French, 2002; Unterman, 2010
3.2 Branch: Testing outcomes from different triage modes	Burström, 2012; Cameron, 2014
3.3 Branch: Emergency department crowding, USR as an outcome measure	Cardin, 2003; Weber, 2012; Calder, 2013
3.4 Branch: Evaluation of the efficacy of new fast track area in the ED.	Nash, 2007
3.5 Branch: Adult ED observation unit.	Schrock, 2010
3.6 Branch: Evaluation of the efficacy of computer Kiosk in the ED.	Stein, 2011
3.7 Branch: Provision of discharge medications or prescription.	Hayes, 2012
3.8 Branch: Implementation of a quality improvement program	Rehmani, 2008

Table 8: Improving the System of Care in the ED, USR as an Outcome Measure: Sub-categories/Branches

Definitions for time to USR in this core-code also varied between researchers. Across Core-code 3 the range was from 24 hours to 90 days, with the mode being 7 days (4 papers). When the branches were studied for consistency and variation in time to USR the following data was attained:

- Branch 3.1 the range was from 72 hours to 90 days, there was no mode as each paper used different times.
- Branch 3.2 one paper used 28 days, the second paper used both 24 hours and 72 hours.
- Branch 3.3 two papers used 7 days and the third paper used 30 days.
- Branch 3.4 the one paper used 72 hours.
- Branch 3.5 the one paper used 7 days.
- Branch 3.6 the one paper did not define the length of time.

4.1.1 Branch (3.1): Changing staff mix and staff supervision practices

In ED health services several measures are appropriately used to measure the quality and activity of workers, such as satisfaction of patients, progressivity of disease, length of stay, patient/physician ratio, and mortality rate. USR has not been routinely used in most countries, but as Trivedy and Cooke (2013) report it is under consideration in the UK.

Four papers were identified on changing staff mix and staff supervision practices. Salazar et al. (2001) and French et al. (2002) measured effectiveness of medical staff experience in relation to USR. French et al. (2002) on testing differences between ED care delivered by medical residents and more senior ED medics found no differences in a variety of care outcomes including USRs to the ED. Salazar et al. (2001) similarly used the opportunity of a resident strike to study differences when care was provided by more senior physicians. While they found a number of differences, USR rates to the ED demonstrated no statistically significant difference. Further, Unterman et al. (2010) examined the differences in care outcomes in the ED between care provided by internal medicine and that provided by emergency medicine physicians. They found that a higher USR rate occurred in patients treated by the internal medicine physicians.

Communication with patients is indispensable however, it becomes difficult when linguistic barriers between staff and patients exist. Bernstein et al. (2002) were concerned about this, and innovated their ED services so that interpreter services were more available and used more fully. By using USR as an outcome measure, they demonstrated that the communication service had impacts in health improvements and decreased the number of USRS to the ED in this group of patients.

4.1.2 Branch (3.2): Testing outcomes from different triage modes

Patient management in EDs principally involves triage, which is a system of clinical risk management employed in EDs worldwide to manage patient flow safely. In general terms a triage method can try and provide the practitioner with the diagnosis, with the patient disposal or with a clinical priority. Burström et al. (2012) tested and compared different triage models as physician-led team triage, nurse/emergency physician triage and nurse/junior physician triage and used USR as one of outcomes measures. They found several benefits in physician-led team triage and they found that USR rates were reduced with this model of care delivery.

In the future, triage using medical histories could become a form of predicting USRs to the ED. Staff undertaking such triage could realise which people with presentations to ED are more predisposed USRs. For example, Cameron et al. (2014) found six scores associated with probability of admission which can be estimated at the point of triage, they are: triage category, age, National Early Warning Score (NEWS), arrival by ambulance, referral source and admission within the last year.

4.1.3 Branch (3.3): Emergency department crowding, USR as an outcome measure

Crowding in the ED is a growing problem around the world. ED crowding has been related with poor quality of patient care, delaying treatment, even risk of worse outcomes. Another potential adverse effect of ED crowding is subsequent admission after initial ED discharge. Several papers reported in Chapter 3, found some or no relationships of USR to crowding, as coincidental findings. A study undertaken by Cardin et al. (2003) focused on an intervention to reduce ED crowding, and used USR as a measure of quality outcome in relation to the intervention. While they found other ED benefits from the intervention, there was no significant change or adverse effect of the intervention on USRs.

ED overcrowding occurs when the volume of ED patients overcomes the available resources in the ED, causing ED staff to operate beyond capacity. This can result in a longer stay in the ED for patients with negative influences on quality and safety of care and also increasing risk of adverse events. Therefore, limiting the time of wait could be an answer to reduce risk of adverse events. In 2005, England implemented a target of 4 hours patient stay in the ED. Weber et al. (2012) evaluated outcomes in relation to this innovation and policy and used USR as an outcome measure. The innovation, did not result in poorer quality or safety in ED care, USR numbers remained unchanged but initially the rate of hospitalisation from USR visits was increased (Weber et al. 2012).

Calder et al. (2013) conducted a study with physicians and their patients to identify associations between ED crowding, discharge decisions and adverse outcomes, including USR to the ED. The team were particularly interested in clinical judgement compared with evidence. Although experienced doctors make decision relied on clinical acumen, no associations were found. However, they suggested that some adverse events (USRs) could be preventable.

4.1.4 Branch (3.4): Evaluation of the efficacy of new fast track area in the ED

A further study involving innovative measures to reduce overcrowding and other issues in the ED, was undertaken by Nash et al. (2007). Nash et al. (2007) generated a fast track area in the ED which was aimed at reducing patients' length of stay, decreasing ED congestion, decreasing the number of patients who leave without being seen by a provider, and improving patient satisfaction. USR was used as one of outcome measures. Nash et al. (2007) found that the fast track area led by nurse practitioners did result in the ED patients moving through ED more quickly and to improvements in the desired outcomes. In addition the USR rate reduced.

4.1.5 Branch (3.5): Adult ED observation unit

Adult ED observation units may provide an alternative disposition for patients with moderate illness that would benefit from a brief hospital stay. They can have advantages such as reducing costs and appropriate time to evaluate patients thus avoiding errors. However, little is known about the relation of USR to ED and the use of observation units. Schrock et al. (2010) did a comparison of USR to ED and the use of observation units with patients who had pyelonephritis. They found that USR rates for this group were unchanged.

4.1.6 Branch (3.6): Evaluation of the efficacy of computer Kiosk in the ED

The adoption of technology has been recognized internationally as an effective development of health care system. In an attempt to improve patient flow through the ED, the kiosk computer systems were used for uncomplicated urinary tract infections in the ED. Stein et al. (2011), using USR as a measure, evaluated the program, which resulted in decreased duration of the ED attendance but there was no change in USR as a result of the innovation.

4.1.7 Branch (3.7): Provision of discharge medications or prescription

Continuity of treatment is an important factor related to USR. Patients need to continue treatment with or without physicians; as is the case with medications. Although prescription is given to them, not all ED patients have money enough or even understanding why this continuity is important. Hayes et al. (2012) compared two groups – providing patients with and not providing discharge medications at the ED (prescription only). Surprisingly, the results demonstrated a reduction of 50 per cent of repeat visits in discharge medication group and a small cost of drugs.

4.1.8 Branch (3.8): Implementation of a quality improvement program

Rehmani and Amatullah (2008) describe a major quality improvement program that was developed across the whole of the ED, with multiple interventions. The outcomes from the innovation and service development interventions revealed multiple improvements and a decrease in 50% of the adult USR rate to the ED.

4.2 Core-Code 4: Outside ED measures that identify USR risk

During recent years, the risks of USR have been in the foreground in ED policies. However, this core-code presents another viewpoint to these discussions. Three papers report on groups and contexts outside of the ED that were using interventions that may enable USR rates to the ED

to be identified and reduced. The two branches as listed in Table 9 reflect the specific contexts in which this assessment of USR risk work is being undertaken.

Core-code 4: Outside ED measures that identify USR risk	
Branch	***Papers addressing this aspect of USR***
4.1 Branch: Seniors at risk	Dendukuri, 2004; Di Bari, 2012
4.2 Branch: Respiratory day hospital reduction in USRs for ED.	Schwartzman, 2001

Table 9: Outside Measures that Identify USR Risk: Sub-categories/Branches

With only three papers allocated to this Core-code definitions for time to USR may have less meaning. In Branch 4.1 the times to USR used were five and six months; in Branch 4.2 no time definition for USR was identified.

4.2.1 Branch (4.1): Seniors at risk

The number of elderly patients in the ED is significant, and they carry high USR risk because they are likely to experience subsequent decline in health, because physicians often do not identify all diagnoses, and because they may not have good access to appropriate treatment and follow up (Dendukuri et al. 2004). Thus, an intervention that facilitates solution for this problem is a validated assessment tool. Two groups of researchers Dendukuri et al. (2004) and Di Bari et al. (2012) were involved in the implementation of assessment tools in the community setting for elderly persons who had been discharged from ED, so as to assess likelihood of USR. Both groups found this type of intervention and assessment to be effective.

4.2.2 Branch (4.2): Respiratory day hospital reduction in USRs for ED

Exacerbations of COPD contribute to reduced lung function and also poor quality of life. Despite the progress in medical care of COPD patients in the last few years and the development of new drugs, it is also associated with high mortality and several visits to the ED. Although the determinants for USR to the ED are not extensively studied, an early intervention and constant surveillance of COPD patients might be the solution to prevent representations to the ED (Schwartzman et al. 2001).

4.3 Core-Code 5: Costs of USR

The cost of providing emergency care is substantial both in human and in economic terms. Moreover, the ED represents a major component of health care expenditures. Each appointment has a high cost with procedures, drugs, equipment and staff. Therefore, repeat visits are not well regarded by economists. This core-code contains two papers about costing

models and frameworks in relation to USR (Table 10). They reflect two specific branches- COPD and Discharge medications.

Core-code 5: Costs of USR	
Branch	***Papers addressing this aspect of USR***
5.1 Branch: COPD	Dalal, 2010
5.2 Branch: Discharge medications provision versus costs of USR	Hayes, 2012

Table 10: Costs of USR: Sub-categories/Branches

With only two papers allocated to this Core-code definitions for time to USR is difficult to assess. In Branch 5.1 the times to USR used was 30-60 days; in Branch 5.2 time to USR was 7 days.

4.3.1 Branch (5.1): Costing COPD

COPD is a common and costly illness that has considerable health consequences. Little is known about the economic cost of COPD exacerbations. However, it is commonly understood to have a high cost considering cost of patterned procedures, drugs and length of stay for treatment. According Dalal et al. (2010), the mean cost of ED visits for COPD exacerbations was $US679 and 15.4% of patients had a USR to the ED. Furthermore, the majority of patients also needed corticosteroids, antibiotics and a short-acting anticholinergic. Thus, the prevention with management and treatment before COPD exacerbations is the best way to reduce cost and USR to the ED.

4.3.2 Branch (5.2): Costing Discharge medications provision versus costs of USR

The number of patients in the ED has been significantly growing in the last few years, and the costs to attend all clients are high. Many interventions have been initiated to reduce admissions to the ED as a solution to reduce costs. Thus, this branch focuses on evaluating discharge medications in relation not only to a little number of USR to the ED but also in relation to costs. The findings from Hayes et al. (2012) in relation to minimising the cost of USR by providing medications at the ED instead of prescriptions has already been discussed in an earlier section of this chapter. For instance, the expense of medications was very low (total of $US1123 for the experimental group) and demonstrated a 50% reduction in USR to the ED.

4.4 Discussion and Conclusion

In this chapter it has been reported that adult USRs to the ED are being used as a measure and/or as an indicator of quality in three conceptual ways, these are ‘improving the ED system

of care', 'outside ED Measures of USR risk', and the 'costs of USR'. Of the papers included in this integrative review of the literature, 22.4% of them were classified into these three core-codes. Some branches for each were identified (eight, two, two respectively). However all these branches were insufficiently saturated with data to be confident in their definition and robust distinctiveness. For example in the core-code 'improving the ED system of care' only 14 papers were identified, and these were distributed sparsely across eight sub-categories. The core-codes 'outside ED Measures of USR risk', and the 'costs of USR' contained few papers (three and two respectively) and these were so diverse that they required different branches. Regarding time to USR used by the researchers, only the papers allocated to Core-code 3 warrant consideration as the core-codes have too few papers; the mode for Core-code 3 was 7 days. These findings, are sufficient to warrant attention and classification, but some caution needs to be applied when considering application of the findings, as there is insufficient data to be confident about the branch classifications.

Chapter 5: Discussion, Implications and Conclusion

In this chapter key findings in relation to the research questions are summarised and general conclusions based on the findings of the integrative review are presented. Furthermore, the strengths and limitations of this thesis are considered, and suggestions for further research into USR to the ED as a quality indicator are presented.

5.1 Review of the Methodology

The methodology adopted for this research was integrative review. It is important to assess confidence in the methodology to ensure rigor in reviewing the results and making conclusions for the research. The study was conducted according to the method outlined and the elements of rigor and validity were systematically attended to during the process of the review. The methods were studied and used truly where they could be applied in the processes of undertaking the integrative review.

5.2 Discussion of Findings from the Integrative Review

The findings demonstrate that researchers around the world use, measure, and report USRs to the ED as a quality indicator, in relation to a wide variety of ED services, patient interventions and clinical outcomes. Of the 96 articles about the subject examined, and 79 articles included in the review many papers were different in methodology and in theme. Research on USRs to the ED is very context specific and most researchers used USR in combination with other measurements when looking for outcomes and measuring quality.

As a result, findings overall reflect quite significant heterogeneity in the use of USR to ED as a quality indicator. This finding of heterogeneity has resulted in reporting of the classifications as a narrative rather than in relation to extracted and synthesised data. While 79 articles were included and codified, six of these papers were codified into two core-codes; thus percentages for each category were calculated with a denominator of 85, rather than 79. Five distinctive core-codes were identified. The first two core-codes 'USR rates and vulnerable groups' (49.4%) and 'factors influencing the prevalence of USR in particular ED settings' (28.2%) were heavily saturated and populated by the data extracted from the included articles. The final three core-codes were more indicative than saturated, these were 'improving the ED system of care' (16.5%), 'outside ED measures of USR risk' (3.5%), and the 'costs of USR' (2.4%); as the figures from the last two core-codes indicates these accounted for just 5.9% of the articles in total.

5.2.1 Discussion related to 'USR rates and USR vulnerable groups'

The first core-code 'USR rates and USR vulnerable groups' attracted just under 50% of the data extracted from the included articles. Two key areas dominated this literature. The first area to dominate was - changes or improvements in the USR rate as outcomes of new or direct interventions in the management of disease eg COPD) or other variables which contributed to people have a high risk of adverse event (eg senior citizens) (Branch 1.1). The second key area to dominate was retrospective analyses of medical records to find the most likely predictors of adverse events (including USR) also most commonly COPD, heart failure, syncope and senior citizens (Branch 1.2).

Studies in Branch 1.3 had some linkages to these first two branches yet were sufficiently different in focus to warrant a sub-classification. These studies were about comparison of outcomes with different drug treatment interventions, diagnostic kiosks versus normal care for expedited management (senior citizens), and post-ED follow-up regimes (community intervention versus normal care).

In Branch 1.4 the role of following evidence-based practice (EBP) through protocols and decision trees, was identified as significant. The studies in this branch all reported positive outcomes for USR rates for following these protocols, and negative impacts on USR rates when such EBP was not pursued in clinical situations.

What is notable about these four branches is that there was wide variation (72 hours - 6 months) in the time to USR definition between studies. The most common definition, 30 days, was used in 17 of the 39 studies (43.5%) included on these four branches.

The final two branches (1.5: 'Roles in the ED and USR rates', and 'Best available evidence for determining USR') had insufficient data extracted to report these findings strongly. However the data as reported in Sections 3.1.5 and 3.1.6 of Chapter Three does reveal some interest in these areas, and these branches may advance as more papers in these areas are published.

The high investment of research in this core-code reveals the degree to which USR to the ED is used as a quality indicator.

5.2.2 Discussion related to 'factors influencing the prevalence of USR in particular ED settings'

There were eight branches detected in relation to this core-code, of these the first two branches were heavily saturated, while the last six branches were indicative having only one to two articles associated with each.

In respect of the first branch 'the causes and factors of USR in a setting for a period of time' there was commonality in the range of causes and factors that were investigated. In these studies differentiation between patient, doctor, and health care systems was important. Definition of time to USR varied in this group of studies but it was most commonly set at 48 hours or 72 hours. There is a need for this work to be subjected to systematic review, but initial analysis is suggestive of USR rates in westernised health services between 2-3% of all ED presentations, and that patient factors have the highest rate of causation, while doctor factors probably are the second most significant factor impacting on USRs. Most of the papers reported in this section (3.2.1) of Chapter Three recommended future research into these aspects, and the need for more studies to use and analyse this type of data.

The second branch grouped research that specifically investigated patient factors related to USR (Section 3.2.2 of Chapter Three). The definition of time to USR also varied in this branch (72 hour to 6 months) and there was little agreement between studies on the basis for choosing these periods. In all papers the researchers argued that there is a need to identify people at risk of USR before they re-present or to minimize USR. There was strong agreement between the researchers that this area of research requires prioritization into the future.

The remaining six branches clustered around investigation of different factors affecting USR rates, but there was insufficient data to draw conclusions from these multiple single studies. There is a clear need for replication of the studies reported in these six sub-sections of Core-code 2. Again there was wide variation in the definition of time to USR (24 hours to 6 months).

5.2.3 Discussion related to 'improving the system of care in the ED, USR as an outcome measure'

As identified in Chapter 4 there were a significant number of research papers (14, 16.5%) that described innovations and strategies to improve ED care and in which USR rates was one of the quality measures to determine that either improvement or no adverse effect had occurred as a result of the innovation (Core-code 3). This finding reveals that this is one of the important uses of USR as a quality indicator within the ED, and that there can probably be some ongoing

recommendations for practice (equivocal) made in respect of this. The time to USR varied across the papers, but the most commonly used time frame was a USR within 7 days.

A difficulty with the core-code at present is that the innovations are diverse and widespread (distributed across eight branches) and there is insufficient data extraction and saturation within these branches to achieve quality synthesised evidence and more detailed recommendations. Clearly this is an emerging area for USR research, and more research is needed for further synthesis.

5.2.4 Discussion related to 'outside ED measure that identify USR risk'

As we identified in Chapter 4 we found three research papers, which offered a very different perspective to the other core-codes. (Core-code 4). These papers related to at risk populations and USR ranges similar to those described in Core-code 1 however, Core-code 4 groups all interventions that were based outside the ED, aimed at reducing the risk of USR to the ED. Two of the papers were quite old (2001 and 2004) so this is not a new and emerging trend. However, because of the inter-relationships between ED and community care and the use of day hospitals this type of intervention may be useful for further consideration and adoption.

5.2.5 Discussion related to 'costs of USR'

Two papers were allocated to Core-code 5, these concerned high USR rates and looked at alternative ways of reducing or containing costs in particular population groups. Both papers were published within the last five years, so this area of research, in using USR as quality (cost) indicator may become one of future interest to policy makers and managers of EDs.

5.3 General discussion regarding USR as a quality indicator

The aim of this study was to assess and conceptualise how adult USRs to the ED, is being used by researchers as a quality indicator. Emerging from these discussions (Sections 5.2.1-5.2.5) it can be understood that researchers in EDs are using USR measures as quality indicators in different ways for different purposes. This is a helpful finding, however, there is limited research into the ways in which these indicators can be validated or used nationally and internationally. In the following paragraphs some general findings that may help other groups to investigate USR phenomena in relation to quality indicators are identified.

This study reveals important findings regarding the use of USR to the ED used as a quality indicator. Three key areas were identified: Health groups and USR risks; factors influencing USR prevalence; improving the system of care in the ED and evaluating impact using USR.

There is strong confidence about the robustness of the first two areas as the majority of papers that were included in this study, were about these matters. There is some confidence in the third area, adoption of findings need to be made with caution, due to more heterogeneity than homogeneity being present in the coding. Two other areas where research is being undertaken outside of the ED to prevent or reduce USR to ED and where costing models in relation to USR have been produced have had less attention and research, therefore at this point the findings are expressed with high caution.

As the health professionals are mainly responsible for the implementation of patient care, this by implication means that health professionals are present in all moments and by their actions they can influence prevention and cure, and so reduce the likelihood of a USR. For example, they are accountable for triage, diagnosis, treatment, discharge and also post discharge. Similarly, an error by a health professional can influence deterioration in health patient status, which consequently can result in a USR.

From when a patient arrives in ED all the steps are crucial to minimize the possibility of that patient making a USR to the ED at a later date and time. The triage, which is the first care to patient, provides direction for the rest of attendance. Other important moments are the diagnosis and treatment, as practically they determine both the success of combating illness and managing length of stay. Additionally, discharge and post discharge are instants fundamental for the patients, because it is the time that they should to learn about continuity of care and self-care. In summary, an incorrect triage, wrong diagnosis, incorrect treatment, improper discharge even an ineffective post discharge can compromise health patient status, and consequently, a revisit to the ED.

USR to ED attendance, may also be influenced by services that can contribute to an increase or a decrease in USR rates. For example, the integrative review revealed that provision of a structured primary care framework, continuity of treatments and provision of medication may all help to reduce USRs. Many researchers are interested in treatment and service innovations to reduce USR rates. Other researchers engaging in innovation in the system of delivery of ED care use USR rate as a measure to illustrate that the situation was not made worse by the adoption of the innovation.

Providing high-quality care is a major concern for all health care providers. Changes or modification in the general systems of care in the ED are made continuously to achieve this goal. The success of the innovations identified in this review were gauged in part by measuring rates of USR.

It is important to highlight that USR visits are associated with internal and external factors, they are: lifestyle of patient, disease, staff, treatment, ED service and another care services. From this information, it is feasible to conclude that USR to the ED can be a quality indicator of interest to those working inside EDs (core-codes 1, 2, 3, 5). The finding in respect of Core-code 4, also suggests that groups outside of the ED understand that the work that they do may also influence USR to ED rates. We found no reporting of this finding in either of the literature reviews included in this integrative review, nor was it reported in the background and literature review sections of the papers that were included in this study.

USR visits can occur despite satisfactory ED service, but USR rates may also provide information that challenges clinicians to review treatments, test alternative care and management models, innovate clinical service delivery and to generally advance ED services and care. At present this area is relatively undefined and it requires more research and discussion internationally to look at the breadth and range of ways in which USR to ED is used, defined and to decide what outcome measures should be most commonly attached to this quality indicator.

5.4 Limitations of the Study

There are several limitations associated with the study; these are listed in Table 11.

Limitation	Explanation
Size of project	This is a small project and it has been contained to the scope of an honours thesis. As such the project may function as pilot design for a further and more analytical study. The findings from this small scale review could also form the basis for future systematic reviews regarding the use of USRs to ED as quality indicator.
Limited methodological power	The level of data collection, analysis and synthesis in an integrative review is conceptual and descriptive, and it has relatively low predictive and transferable power. Other review methodologies may have different findings and will have different research power. The findings from this study can inform other studies designed for more powerful research outcomes.
Limited use of a tight PICOT	As explained in Chapter 2, there were some issues associated with using a tight PICOT for this project. This is primarily because USR as a quality measure, has not really been indexed for searching by researchers or in the databases. As the research area evolves and searching is able to be undertaken more specifically, tighter outcomes from literature reviews and evidence synthesis may be more easily achieved.
Limited critical appraisal	In keeping with integrative review principles full critical appraisal of each paper was not undertaken. Rather a simplified approach of confirming author and journal credibility was used. A systematic process is important to identify the strengths and weaknesses of each research article in order to assess the usefulness and validity of research findings. Although the level of critical review was limited, a general assessment of theoretical and conceptual key themes in the USR to ED literature was achieved.
Variability and heterogeneity in the included research studies	Another limitation was variability between studies in design, definition to USR, and the ways in which USR was used as a quality indicator. The review identified significant methodological and clinical heterogeneity. For instance, there were differences in study designs such as retrospective, prospective, randomized control studies. Moreover, differences between key characteristics of the participants, interventions or outcome measures, such as time to USR to the ED. Therefore, because of large differences in clinical or methodological nature between studies, this research area needs more agreement and steps for integration to be agreed internationally, and then the studies need to be followed up with systematic reviews.

Table 11: Limitations of the Study

5.5 Implications and Recommendations

Arising from this discussion and from the work in the previous chapters of this thesis are some key implications and recommendations. These are presented in Table 12.

Type of Implication	Finding or Issue	Recommendations
Further research	1) Limited literature reviews on USRs identified and no systematic review identified. Findings from this indicative review reveal there is enough data to undertake some systematic reviews into this topic. 2) Inconsistent definition of time to USR to the ED. 3) Three of the five core-codes were insufficiently saturated to define trends and make key points regarding the importance of the codes to future practice of USR to the ED as a quality indicator. Two of the codes were well established, but further research is needed into the operationalisation of the USR variables and measures. 4) Currently, there is considerable variability in the range of studies into USR. [Variability in the methodology for the research (observational, randomized, retrospective cohort, prospective cohort), variability of subject of studies, variation in in relation to the use of USR measures, variation in definitions of USR].	1) There is need for systematic reviews to be undertaken into USRs to the ED especially in relation to the use of USR as a quality indicator. 2) Researchers need to identify more clearly the rationale for determining time to USR in the definition of USR, some international agreements would help the attainment of some heterogeneity in the use of USR as a measure. 3) Further primary research is needed in all five core-code areas in which USR to the ED is being used as a quality indicator. In order to generate high quality evidence on USR to the ED, more studies with an experimental design of a high methodological quality are required. 4) More comparative replication studies on the effectiveness of USR as a quality indicator in institutions are needed to weigh the importance of this in different working environments.
Policy	The integrative review has demonstrated that there is sufficient international interest in the USR to the ED as a quality measure to warrant further debate and discussion, and to advance ED and health care policy.	That there be national or regional dialogue between ED policy makers, researchers and clinicians to establish or recommend some baseline practices in relation to the use of USR to the ED as a quality indicator.
Practice	Several important implications for practice in relation to the use of USR as a quality indicator emerged from the integrative review for Core-codes 1-3.	*Core-code 1:* The data seems to support with caution: 1.1 clinicians assessing the relative benefits different interventions to improve control of health in populations that are predisposed to USR risk; 1.2 keeping of and investigation of clinical records to find the most likely predictors of adverse events in the clinical ED setting; 1.3 comparing alternative treatments to assess effectiveness using USR as one of the indicators; and 1.4 supporting clinicians to achieve

		adherence to best practice, clinical ED guidelines and protocols to reduce likelihood or incidence of USR rate. *Core-code 2*: The data seems to support with caution record keeping in EDs, audit and other analysis of USR rates to examine the illness, patient, doctor, and health care system factors influencing USR to ED. *Core-code 3:* The data seems to support with caution the use of USR as an outcome measure when innovating or improving the system of care in the ED.

Table 12: Implications and Recommendations

5.6 Conclusion

This study has used an integrative review to reveal the current ways in which USR to the ED is being used as a quality indicator by researchers. The result was the identification of five core-codes (with branches) against which the included papers could be classified. The core-codes 'USR rates and USR vulnerable groups' and 'factors influencing the prevalence of USR rates in EDs' were the most heavily subscribed and therefore the most commonly investigated and provide rationales for use of USR as a quality indicator. The core-code 'improving the system of care in the ED and USR as an outcome measure' revealed that researchers in this area had undertaken considerable activity. The final two core-codes 'outside measures that identify USR risk' and the 'costs of USR' reveal smaller investment by researchers.

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Appendix 1: PICOT and Corresponding Search Terms

CINAHL – Search conducted 18 April 2014

#	Query	Limiters
S3	S1 AND S2	
S2	"unscheduled return*" OR "return admission" OR "return visit" OR "repeat visit"	Abstract Available; Published Date: 20000101-20140418
S1	"emergency department" OR "emergency care" OR "emergency" OR "emergency medical services" OR "emergency room"	Abstract Available; Published Date: 20000101-20140418

MEDLINE – Search conducted 12 May 2014.

#	Query	Limiters
S3	S1 AND S2	
S2	(MM "Emergency Service, Hospital") OR (MM "Emergency Medical Services") OR (MM "Emergency Medicine") OR (MM "Emergency Nursing")	Abstract available Publish date: 20000101 - 20140512
S1	"unscheduled return*" OR "return admission" OR "return visit" OR "repeat visit"	Abstract available Publish date: 20000101 - 20140512

SCOPUS – Search conducted

#	Query	Limiters
S3	S1 AND S2	
S2	"Unscheduled returns"	Abstract available Publish date: 20000101 - 2014
S1	"Emergency department"	Abstract available Publish date: 20000101 - 2014

Appendix 2: Inclusion Criteria Assessment Form

Record Number: 1

Citation: Aaron et al. (2003)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: randomized, double-blind, placebo-controlled trial study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 2

Citation: Abualenain et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: Retrospective review of a quality assurance program.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 3

Citation: Barrett et al. (2011)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective, observational cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 4

Citation: Bay and Strong (2011)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED			
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator		X	
Definition and/or Context and/or Purpose for Use		X	
Outcomes			
Rate of USR		X	
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: descriptive cross-sectional survey design study.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 5

Citation: Bernstein et al. (2002)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: descriptive study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 6

Citation: Birkhahn et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR			
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: observational cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 7

Citation: Birnbaum et al. (2008)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: single-setting, prospective, observational cohort design.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 8

Citation: Brede et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed		X	
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 9

Citation: Burström et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 10

Citation: Calder et al. (2014)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: real-time qualitative survey.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 11

Citation: Calder et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: real-time qualitative survey.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 12

Citation: Cameron et al. (2014)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: multicentre, retrospective, cross-sectional study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 13

Citation: Cardin et al. (2003)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: comparison between the study hospital and 2 external control hospitals.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 14

Citation: Chiu et al. (2007)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: descriptive review analysis.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 15

Citation: Dalal et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking		X	
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective, cross-sectional, observational study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 16

Citation: Daneman et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed		X	
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 17

Citation: Dendukuri et al. (2004)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: randomized trial of a nursing intervention.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 18

Citation: Di Bari et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 19

Citation: Feldman et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed		X	
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 20

Citation: Ferre et al. (2009)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective review.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 21

Citation: French et al. (2002)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective review.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 22

Citation: Geirsson et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective observational cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 23

Citation: Guttman et al. (2004)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective pre/post study			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 24

Citation: Harrison et al. (2002)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 25

Citation: Hastings et al. (2008a)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: Secondary analysis of data.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 26

Citation: Hastings et al. (2008b)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: Secondary analysis of data			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 27

Citation: Hastings et al. (2007)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed		X	
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective, cohort study			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 28

Citation: Hayes et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: Comparison between groups of patients.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 29

Citation: Henneman et al. (2011)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator		X	
Definition and/or Context and/or Purpose for Use		X	
Outcomes			
Rate of USR		X	
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014		X	
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective observational study.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 30

Citation: Hollingsworth et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR			X
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed		X	
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective observational study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 31

Citation: Horney et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 32

Citation: Hu et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: multivariate logistic regression study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 33

Citation: Huang et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective, cross-sectional study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 34

Citation: Imsuwan (2011)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking			X
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective observational study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 35

Citation: Khan et al. (2011)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed		X	
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 36

Citation: Kim et al. (2011)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective cohort study.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 37

Citation: Kirby et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective analysis of data			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 38

Citation: Kuan and Mahadevan (2009)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name:			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 39

Citation: LaMantia et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed			
Impact Factor/JCR and/or Journal Ranking			
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 40

Citation: Leathem and Dorran (2007)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: pre/posteducational intervention study design.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 41

Citation: Lee et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study with prospective data collection.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 42

Citation: Lin et al. (2006)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: follow-up survey study.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 43

Citation: Lo (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use		X	
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: medical case.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 44

Citation: Martin-Gill and Reiser (2004)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study of Patients.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 45

Citation: McCusker et al. (2000)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: observational cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 46

Citation: McCusker et al. (2003)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: multisite randomized controlled trial.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 47

Citation: McCusker et al. (2007)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: multilevel multivariate analyses.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 48

Citation: McCusker et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 49

Citation: Metlay et al. (2007)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: cluster randomized controlled trial study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 50

Citation: Miller et al. (2008)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective, randomized, double-blinded, placebo-controlled trial study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 51

Citation: Moore et al. (2007)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 52

Citation: Murphy et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator		X	
Definition and/or Context and/or Purpose for Use		X	
Outcomes			
Rate of USR		X	
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014		X	
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name:			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 53

Citation: Nash et al. (2007)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: exploratory descriptive study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 54

Citation: Naughton et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 55

Citation: Nuñez et al. (2006)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective unmatched case-control study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 56

Citation: Núñez et al. (2006)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: descriptive study.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 57

Citation: Patel et al. (2009)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 58

Citation: Perry et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED		X	
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: Postal survey study.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 59

Citation: Quinn et al. (2004)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 60

Citation: Rame et al. (2001)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 61

Citation: Ratzan (2014)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED		X	
Adults		X	
Not a mental health institution		X	
Intervention			
USR as a Measure of Quality and/or as Quality Indicator		X	
Definition and/or Context and/or Purpose for Use		X	
Outcomes			
Rate of USR		X	
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014		X	
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed		X	
Impact Factor/JCR and/or Journal Ranking		X	
Context Specific Information			
Country/County or State - Research Setting		X	
Type of Research Design			
Name:		X	
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 62

Citation: Rehmani and Amatullah (2008)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: data collection and analysis, data-driven process change.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 63

Citation: Rising et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 64

Citation: Ross et al. (2003)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective observational cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 65

Citation: Ross et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective observational cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 66

Citation: Rosychuk et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 67

Citation: Rowe et al. (2009)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 68

Citation:Salazar et al. (2001)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: observational study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 69

Citation: Salvi et al. (2008)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective observational cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 70

Citation: Salvi et al. (2009)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed		X	
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective observational cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 71

Citation: Salvi et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective observational study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 72

Citation: Sauvin et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 73

Citation: Schneider et al. (2000)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED		X	
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator		X	
Definition and/or Context and/or Purpose for Use		X	
Outcomes			
Rate of USR		X	
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective, multicenter, randomized study.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 74

Citation: Schrock et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 75

Citation: Schwartzman et al. (2001)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: Retrospective cohort study			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 76

Citation: Shaver et al. (2004)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 77

Citation: Silbergleit et al. (2006)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective observational study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 78

Citation: Sin et al. (2002)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective observational study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 79

Citation: Stansfield (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator			X
Definition and/or Context and/or Purpose for Use			X
Outcomes			
Rate of USR			X
Other:……			
Time-frame			
Time Definition of USR			X
Published between 2000-2014			X
Author Standing			
Area Expertise			X
Research & Publication Track-record			X
Journal Quality			
Peer-reviewed			
Impact Factor/JCR and/or Journal Ranking			
Context Specific Information			
Country/County or State - Research Setting			X
Type of Research Design			
Name:			X
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 80

Citation: Starck et al. (2000)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED		X	
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator		X	
Definition and/or Context and/or Purpose for Use		X	
Outcomes			
Rate of USR		X	
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed			X
Impact Factor/JCR and/or Journal Ranking			X
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name:			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 81

Citation: Stein et al. (2011)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: prospective unblinded randomized trial.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 82

Citation: Stephens and Pounds (2006)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED		X	
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator		X	
Definition and/or Context and/or Purpose for Use		X	
Outcomes			
Rate of USR		X	
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective observational study.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 83

Citation: Touquet et al. (2008)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: single-site prospective cohort study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 84

Citation: Trivedy and Cooke (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: rapid evidence assessment study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 85

Citation: Tsai et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed		X	
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective randomized study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 86

Citation: Unterman et al. (2010)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: Retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 87

Citation: Vanbrabant and Knockaert (2009)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective observational study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 88

Citation: Vardy et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED			X
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name:			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 89

Citation: Verelst et al. (2014)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective medical record review.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 90

Citation: Viner et al. (2000)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: medical screening examination and a follow up structured interview.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 91

Citation: von Besser and Mills (2011)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: literature review of 5 studies evidence synthesis.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 92

Citation: Weber et al. (2012)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 93

Citation: Weiss et al. (2002)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED			X
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective cohort study.			
Acceptance for Inclusion			
Reviewer 1		X	
Reviewer 2		X	

Record Number: 94

Citation: Wells et al. (2009)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR		X	
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 95

Citation: White et al. (2011)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise		X	
Research & Publication Track-record		X	
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: exploratory quantitative descriptive study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Record Number: 96

Citation: Yeatts et al. (2013)

Reviewer 1 Date:

Reviewer 2 Date:

Criteria	Yes	No	Unsure
Population			
Paper about USR to the ED	X		
Adults	X		
Not a mental health institution	X		
Intervention			
USR as a Measure of Quality and/or as Quality Indicator	X		
Definition and/or Context and/or Purpose for Use	X		
Outcomes			
Rate of USR	X		
Other:……			
Time-frame			
Time Definition of USR	X		
Published between 2000-2014	X		
Author Standing			
Area Expertise	X		
Research & Publication Track-record	X		
Journal Quality			
Peer-reviewed	X		
Impact Factor/JCR and/or Journal Ranking	X		
Context Specific Information			
Country/County or State - Research Setting	X		
Type of Research Design			
Name: retrospective study.			
Acceptance for Inclusion			
Reviewer 1	X		
Reviewer 2	X		

Appendix 3: Excluded Papers

Excluded Articles	Reason
Alessandrini, E. A., Lavelle, J. M., Grenfell, S. M., Jacobstein, C. R., & Shaw, K. N. (2004). Return Visits to a Pediatric Emergency Department. *Pediatric Emergency Care*, 20(3), 166-171.	Paediatric study.
Ali, A. B., Place, R., Howell, J., & Malubay, S. M. (2012). Early pediatric emergency department return visits: a prospective patient-centric assessment. *Clinical Pediatrics*, 51(7), 651-658. doi: 10.1177/0009922812440840	Paediatric study.
Bajaj, L., Turner, C. G., & Bothner, J. (2006). A randomized trial of home oxygen therapy from the emergency department for acute bronchiolitis. *Pediatrics*, 117(3), 633-640.	Paediatric study.
Bay, E., & Strong, C. (2011). Mild traumatic brain injury: a Midwest survey of discharge teaching practices of emergency department nurses. *Advanced Emergency Nursing Journal*, 33(2), 181-192. doi: 10.1097/TME.0b013e318217c958	No USR time.
Bjornson, C., Russell, K., Vandermeer, B., Klassen, T. P., & Johnson, D. W. (2013). Nebulized epinephrine for croup in children. *Cochrane Database of Systematic Reviews* (10).	Paediatric study.
Blomberg, H., Svennblad, B., Michaelsson, K., Byberg, L., Johansson, J., & Gedeborg, R. (2013). Prehospital trauma life support training of ambulance caregivers and the outcomes of traffic-injury victims in Sweden. *Journal of The American College of Surgeons*, 217(6), 1010-1019.e1011-1012. doi: 10.1016/j.jamcollsurg.2013.08.002	Not related sufficiently to USR.
Camargo, C. A., Jr., Ramachandran, S., Ryskina, K. L., Lewis, B. E., & Legorreta, A. P. (2007). Clinical report. Association between common asthma therapies and recurrent asthma exacerbations in children enrolled in a state Medicaid plan. *American Journal of Health-System Pharmacy*, 64(10), 1054-1061. doi: 10.2146/ajhp060256	Paediatric study.
Cabana, M. D., Bruckman, D., Bratton, S. L., Kemper, A. R., & Clark, N. M. (2003). Association between outpatient follow-up and pediatric emergency department asthma visits. *The Journal of Asthma: Official Journal of The Association For The Care of Asthma*, 40(7), 741-749.	Paediatric study.
Claassen, C. A., Kashner, T. M., Gilfillan, S. K., Larkin, G. L., & Rush, A. J. (2005). Psychiatric emergency service use after implementation of managed care in a public mental health system. *Psychiatric Services*, 56(6), 691-698.	Paediatric study.
Coley, K. C., Saul, M. I., & Seybert, A. L. (2009). Economic burden of not recognizing panic disorder in the emergency department. *The Journal of Emergency Medicine*, 36(1), 3-7.	Psychiatric study.
Colvin, J. M., Jaffe, D. M., & Muenzer, J. T. (2012). Evaluation of the precision of emergency department diagnoses in young children with fever. *Clinical Pediatrics*, 51(1), 51-57. doi: 10.1177/0009922811417295	Paediatric study.

Costello, B. E., Simon, H. K., Massey, R., & Hirsh, D. A. (2010). Pandemic H1N1 influenza in the pediatric emergency department: a comparison with previous seasonal influenza outbreaks. *Annals of Emergency Medicine*, 56(6), 643-648. doi: 10.1016/j.annemergmed.2010.03.001	Paediatric study.
Daneman, N., Lu, H., & Redelmeier, D. A. (2010). Discharge after discharge: predicting surgical site infections after patients leave hospital. *Journal of Hospital Infection, 75*(3), 188-194. doi: 10.1016/j.jhin.2010.01.029	
Depiero, A. D., Ochsenschlager, D. W., & Chamberlain, J. M. (2002). Analysis of pediatric hospitalizations after emergency department release as a quality improvement tool. *Annals of Emergency Medicine*, 39(2), 159-163.	Paediatric study.
Doan, Q., Chan, M., Leung, V., Lee, E., & Kissoon, N. (2010). The impact of an oral rehydration clinical pathway in a paediatric emergency department. *Paediatrics and Child Health*, 15(8), 503-507.	Paediatric study.
Gallagher, R. A., Porter, S., Monuteaux, M. C., & Stack, A. M. (2013). Unscheduled return visits to the emergency department: the impact of language. *Pediatric Emergency Care*, 29(5), 579-583. doi: 10.1097/PEC.0b013e31828e62f4	Paediatric study.
Gaucher, N., Bailey, B., & Gravel, J. (2011). For children leaving the emergency department before being seen by a physician, counseling from nurses decreases return visits. *International Emergency Nursing*, 19(4), 173-177. doi: 10.1016/j.ienj.2011.03.002	Paediatric study.
Gaucher, N., Bailey, B., & Gravel, J. (2012). Impact of physicians' characteristics on the admission risk among children visiting a pediatric emergency department. *Pediatric Emergency Care*, 28(2), 120-124. doi: 10.1097/PEC.0b013e318243f8e0	Paediatric study.
Goldman, R. D., Kapoor, A., & Mehta, S. (2011). Children admitted to the hospital after returning to the emergency department within 72 hours. *Pediatric Emergency Care*, 27(9), 808-811. doi: 10.1097/PEC.0b013e31822c1273	Paediatric study.
Goldman, R. D., Ong, M., & Macpherson, A. (2006). Unscheduled return visits to the pediatric emergency department-one-year experience. *Pediatric Emergency Care*, 22(8), 545-549.	Paediatric study.
Gregor, M. A., Wheeler, J. R., Stanley, R. M., Mahajan, P. V., Maio, R. F., & Piette, J. D. (2009). Caregiver adherence to follow-up after an emergency department visit for common pediatric illnesses: Impact on future ED use. *Medical Care*, 47(3), 326-333. doi: 10.1097/MLR.0b013e3181893747	Paediatric study.
Guttmann, A., Zagorski, B., Austin, P. C., Schull, M., Razzaq, A., To, T., & Anderson, G. (2007). Effectiveness of emergency department asthma management strategies on return visits in children: a population-based study. *Pediatrics*, 120(6), e1402-1410.	Paediatric study.
Hack, J. B., & Hecht, C. (2009). Emergency physicians' patterns of treatment for presumed gonorrhea and chlamydia in women: one center's practice. The Journal of Emergency Medicine, 37(3), 257-263. doi: 10.1016/j.jemermed.2007.06.040	Gynecological study.
Hartley, K. L., Gedde, S. J., Venkatraman, A. S., Feuer, W. J., & Ajuria-Londono, L. (2007). Is it safe to have an ophthalmic emergency in July? Ophthalmic Surgery, Lasers & Imaging: The Official Journal of The International Society For Imaging In The Eye, 38(5), 358-364.	Ophthalmological study.
Henneman, P. L., Garb, J. L., Capraro, G. A., Li, H., Smithline, H. A., & Wait, R. B. (2011). Geography and travel distance impact emergency department visits. *The Journal of Emergency Medicine*, 40(3), 333-339. doi: 10.1016/j.jemermed.2009.08.058	No USR time.

Iyer, S. B., Gerber, M. A., Pomerantz, W. J., Mortensen, J. E., & Ruddy, R. M. (2006). Effect of point-of-care influenza testing on management of febrile children. *Academic Emergency Medicine*, 13(12), 1259-1268.	Paediatric study.
Jain, S., Cheng, J., Alpern, E. R., Thurm, C., Schroeder, L., Black, K., . . . Alessandrini, E. A. (2014). Management of Febrile Neonates in US Pediatric Emergency Departments. *Pediatrics*, 133(2), 187-195. doi: 10.1542/peds.2013-1820	Paediatric study.
Johnson, T. J., Weaver, M. D., Borrero, S., Davis, E. M., Myaskovsky, L., Zuckerbraun, N. S., & Kraemer, K. L. (2013). Association of race and ethnicity with management of abdominal pain in the emergency department. *Pediatrics*, 132(4), e851-e858. doi: 10.1542/peds.2012-3127	Paediatric study.
Jones, H. W., III. (2003). [Commentary on] Extending the time limit for starting the Yuzpe regimen of emergency contraception to 120 hours. *Obstetrical & Gynecological Survey*, 58(9), 587-588.	This is an O & G study.
Kaddan, W., Poznansky, O., Amir, L., Mimouni, M., & Waisman, Y. (2006). Medical education and quality of care in the pediatric emergency department setting: a combined model. *European Journal of Emergency Medicine: Official Journal of The European Society for Emergency Medicine*, 13(3), 139-143.	Paediatric study.
Kao, Y., & Liu, S. (2005). A nursing experience with a child with rape trauma by using therapeutic play in an emergency room [Chinese]. *Journal of Nursing*, 52(1), 88-93.	Paediatric study.
Kessler, D. O., Krantz, A., & Mojica, M. (2012). Randomized trial comparing wound packing to no wound packing following incision and drainage of superficial skin abscesses in the pediatric emergency department. *Pediatric Emergency Care*, 28(6), 514-517. doi: 10.1097/PEC.0b013e3182587b20	Paediatric study.
Kim, A. S., Fullerton, H. J., & Johnston, S. C. (2011). Risk of vascular events in emergency department patients discharged home with diagnosis of dizziness or vertigo. *Annals of Emergency Medicine*, 57(1), 34-41. doi: 10.1016/j.annemergmed.2010.06.559	Hospital discharge.
Kim, J. H., Lee, J. E., Kim, B. K., Lee, K. M., Kim, J. S., & Han, S. B. (2007). Hypothermic cardiac arrest. *Indian Journal of Pediatrics*, 74(8), 765-767.	Paediatric study.
Koukia, E., Giannouli, E., Gonis, N., & Douzenis, A. (2010). Security rules and banned items in psychiatric acute admission wards in Athens, Greece. *International Journal of Mental Health Nursing*, 19(6), 428-436. doi: 10.1111/j.1447-0349.2010.00695.x	This is a psychiatric study.
Kurowski, E. M., Byczkowski, T., & Timm, N. (2012). Return visit characteristics among patients who leave without being seen from a pediatric ED. *American Journal of Emergency Medicine*, 30(7), 1019-1024. doi: 10.1016/j.ajem.2011.06.017	Not related with USR to the ED.
Lammers, E. J., Adler-Milstein, J., & Kocher, K. E. (2014). Does health information exchange reduce redundant imaging? Evidence from emergency departments. *Medical Care*, 52(3), 227-234. doi: 10.1097/MLR.0000000000000067	Not sufficiently specific to USR.
Lawrence, L. M., Jenkins, C. A., Zhou, C., & Givens, T. G. (2009). The effect of diagnosis-specific computerized discharge instructions on 72-hour return visits to the pediatric emergency department. *Pediatric Emergency Care*, 25(11), 733-738. doi: 10.1097/PEC.0b013e3181bec817	Paediatric study.
Leathem, A. M., & Dorran, T. J. (2007). Poisoning due to raw gyromitra esculenta (false morels) west of the rockies. *Canadian Journal of Emergency Medicine*, 9(2), 127-130.	No USR time.

LeDuc, K., Rosebrook, H., Rannie, M., & Gao, D. (2006). Pediatric emergency department recidivism: demographic characteristics and diagnostic predictors. *Journal of Emergency Nursing: JEN: Official Publication of The Emergency Department Nurses Association*, 32(2), 131-138.	Paediatric study.
Levy, J. A., & Bachur, R. G. (2007). Intravenous dextrose during outpatient rehydration in pediatric gastroenteritis. *Academic Emergency Medicine*, 14(4), 324-330.	Paediatric study.
Lin, P., Hung, S., Liao, M., Sheen, S., & Jong, S. (2006). Care needs and level of care difficulty related to hip fractures in geriatric populations during the post-discharge transition period. *Journal of Nursing Research (Taiwan Nurses Association)*, 14(4), 251-259.	Hospital discharge.
Lo, B. M. (2013). Decreasing d-dimer after recent negative computed tomographic pulmonary angiogram does not rule out pulmonary embolism. *American Journal of Emergency Medicine*, 31(6), 996.e995-996. doi: 10.1016/j.ajem.2013.01.034	No USR time.
Lyons, M. S., Lindsell, C. J., Raab, D. L., Ruffner, A. H., Trott, A. T., & Fichtenbaum, C. J. (2009). Comparison of emergency department HIV testing data with visit or patient as the unit of analysis. *Journal of Medical Screening*, 16(1), 29-32. doi: 10.1258/jms.2009.008086	Not related with USR.
Macias, C. G., Felner, E. I., & Gan, V. (2003). Inhaled corticosteroids may be superior to systemic corticosteroids in children with moderate-to-severe acute asthma. *Pediatric Asthma, Allergy & Immunology*, 16(3), 121-128.	Paediatric study.
Michelson, K. A., Monuteaux, M. C., Stack, A. M., & Bachur, R. G. (2012). Pediatric emergency department crowding is associated with a lower likelihood of hospital admission. *Academic Emergency Medicine: Official Journal of The Society for Academic Emergency Medicine*, 19(7), 816-820. doi: 10.1111/j.1553-2712.2012.01390.x	Paediatric study.
Miller, M. K., Dowd, M. D., Friesen, C. A., & Walsh-Kelly, C. M. (2012). A randomized trial of enema versus polyethylene glycol 3350 for fecal disimpaction in children presenting to an emergency department. *Pediatric Emergency Care*, 28(2), 115-119.	Paediatric study.
Miller, A. C., Frei, S. P., Rupp, V. A., Joho, B. S., Miller, K. M., & Bond, W. F. (2012). Validation of a Triage Algorithm for Psychiatric Screening (TAPS) for Patients With Psychiatric Chief Complaints. *JAOA: Journal of the American Osteopathic Association*, 112(8), 502-508.	Psychiatric study.
Mintegi Raso, S., Benito Fernández, J., García González, S., Corrales Fernández, A., Bartolomé Albistegui, M. J., & Trebolazabala Quirante, N. (2004). [Patient demand and management in a hospital pediatric emergency setting]. *Anales De Pediatría* (Barcelona, Spain: 2003), 61(2), 156-161.	Paediatric study.
Mintegui Raso, S., Benito Fernández, J., Vázquez Ronco, M. A., Ortiz Andrés, A., Capapé Zache, S., & Fernández Landaluce, A. (2000). [Children's unscheduled return visits to an emergency department]. *Anales Españoles De Pediatría*, 52(6), 542-547.	Paediatric study.
Mitchell, R. G., Guly, U. M., Rainer, T. H., & Robertson, C. E. (2000). Paramedic activities, drug administration and survival from out of hospital cardiac arrest. *Resuscitation*, 43(2), 95-100.	Not sufficiently specific to USR.
Murphy, M., Smith, L., Palma, A., Lounsbury, D., Bijur, P., Chambers, P., & Gallagher, E. J. (2013). Feasibility of a computer-delivered driver safety behavior screening and intervention program initiated during an emergency department visit. *Traffic Injury Prevention*, 14(1), 39-45. doi: 10.1080/15389588.2012.690545	No USR time.

Nagler, J., Wright, R. O., & Krauss, B. (2006). End-tidal carbon dioxide as a measure of acidosis among children with gastroenteritis. *Pediatrics*, 118(1), 260-267.	Paediatric study.
Napeñas, J. J., Hong, C. H., Kempter, E., Brennan, M. T., Furney, S. L., & Lockhart, P. B. (2011). Selective serotonin reuptake inhibitors and oral bleeding complications after invasive dental treatment. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology & Endodontology*, 112(4), 463-467.	Endodontological study.
Núñez, S., Martínez Sanz, R., Ojeda, E., & Aguirre-Jaime, A. (2006). Clinical profile and impact of the unscheduled return to Emergency Department by elders. *Perfil clínico-asistencial e impacto del retorno inesperado a urgencias de un mayor de 65 años*, 29(2), 199-205.	Spanish paper.
O'Neill, K., Silvestri, A., & McDaniel-Yakscoe, N. (2001). A pediatric emergency department follow-up system: completing the cycle of care. *Pediatric Emergency Care*, 17(5), 392-395.	Paediatric study.
Ogilvie, D. (2005). Hospital based alternatives to acute paediatric admission: A systematic review. *Archives of Disease in Childhood*, 90(2), 138-142.	Paediatric study.
Olasveengen, T. M., Sunde, K., Brunborg, C., Thowsen, J., Steen, P. A., & Wik, L. (2009). Intravenous drug administration during out-of-hospital cardiac arrest: a randomized trial. *JAMA: The Journal of The American Medical Association*, 302(20), 2222-2229. doi: 10.1001/jama.2009.1729	Not sufficiently specific to USR.
Olfson, M., Marcus, S. C., & Bridge, J. A. (2013). Emergency department recognition of mental disorders and short-term outcome of deliberate self-harm. *The American Journal of Psychiatry*, 170(12), 1442-1450. doi: 10.1176/appi.ajp.2013.12121506	This is a psychiatric study.
Pediatric corner: don't assume that febrile illnesses aren't serious: effects might last more than a week. (2008). *ED Nursing*, 11(3), 30-31.	Paediatric study.
Perry, J. J., Goindi, R., Symington, C., Brehaut, J., Taljaard, M., Schneider, S., & Stiell, I. G. (2012). Survey of emergency physicians' requirements for a clinical decision rule for acute respiratory illnesses in three countries. *Canadian Journal of Emergency Medicine*, 14(2), 83-89. doi: 10.2310/8000.2012.110552	Hospital admission.
Persse, D. E., Key, C. B., Bradley, R. N., Miller, C. C., & Dhingra, A. (2003). Cardiac arrest survival as a function of ambulance deployment strategy in a large urban emergency medical services system. *Resuscitation*, 59(1), 97-104.	Not sufficiently specific to USR.
Posner, J. C., Hawkins, L. A., Garcia-Espana, F., & Durbin, D. R. (2004). A randomized, clinical trial of a home safety intervention based in an emergency department setting. *Pediatrics*, 113(6), 1603-1608.	Not sufficiently specific to USR.
Ratzan, R. M. (2014). 'Lives there who loves his pain?': Empathy, Creativity, and the Physician's Obligation. *Hastings Center Report*, 44(1), 18-21. doi: 10.1002/hast.251	No scientific information.
Reinke, D. A., Walker, M., Boslaugh, S., & Hodre, D., III. (2009). Predictors of pediatric emergency patients discharged against medical advice. *Clinical Pediatrics*, 48(3), 263-270. doi: 10.1177/0009922808323109	Paediatric study.
Rimmer, C. S., & Burke, D. (2009). Proximal interphalangeal joint hyperextension injuries in children. *Emergency Medicine Journal*, 26(12), 854-856.	Paediatric study.
Rosychuk, R. J., Klassen, T. P., Metes, D., Voaklander, D. C., Senthilselvan, A., & Rowe, B. H. (2010). Croup presentations to emergency departments in Alberta, Canada: a large population-based study. *Pediatric Pulmonology*, 45(1), 83-91. doi: 10.1002/ppul.21162	Paediatric study.

Rosychuk, R. J., Klassen, T. P., Voaklander, D. C., Senthilselvan, A., & Rowe, B. H. (2011). Presentations of infants to emergency departments in alberta, Canada, for bronchiolitis: a large population-based study. *Pediatric Emergency Care*, 27(3), 189-195. doi: 10.1097/PEC.0b013e31820d650f	Paediatric study.
Rosychuk, R. J., Voaklander, D. C., Klassen, T. P., Senthilselvan, A., Marrie, T. J., & Rowe, B. H. (2010). Asthma presentations by children to emergency departments in a Canadian province: a population-based study. *Pediatric Pulmonology, 45*(10), 985-992. doi: 10.1002/ppul.21281	Paediatric study.
Saidinejad, M., & Zorc, J. (2014). Mobile and web-based education: delivering emergency department discharge and aftercare instructions. *Pediatric Emergency Care, 30*(3), 211-216. doi: 10.1097/PEC.0000000000000097	Paediatric study.
Sears, M. R., & Johnston, N. W. (2007). Understanding the September asthma epidemic. *Journal of Allergy and Clinical Immunology, 120*(3), 526-529.	Paediatric study.
Schneider, T., Martens, P. R., Paschen, H., Kuisma, M., Wolcke, B., Gilner, B. E., . . . Chamberlain, D. (2000). Multicenter, randomized, controlled trial of 150-J biphasic shocks compared with 200- to 360-J monophasic shocks in the resuscitation of out-of-hospital cardiac arrest victims. *Circulation,* 102(15), 1780-1787.	Not sufficiently specific to USR.
Shefrin, A. E., & Goldman, R. D. (2009). Use of dexamethasone and prednisone in acute asthma exacerbations in pediatric patients. *Canadian Family Physician, 55*(7), 704-706.	Paediatric study.
Smith, S. R., Jaffe, D. M., Highstein, G., Fisher, E. B., Trinkaus, K. M., & Strunk, R. C. (2006). Asthma coaching in the pediatric emergency department. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 13*(8), 835-839.	Paediatric study.
Sturm, J. J., Hirsh, D. A., Schweickert, A., Massey, R., & Simon, H. K. (2010). Ondansetron use in the pediatric emergency department and effects on hospitalization and return rates: are we masking alternative diagnoses? *Annals of Emergency Medicine, 55*(5), 415-422. doi: 10.1016/j.annemergmed.2009.11.011	Paediatric study.
Stansfield, M. A. (2012). The efficacy of a nurse practitioner consultative program to support care-in-place for the nursing home resident experiencing a change in condition. (Ph.D.), State University of New York at Buffalo. Retrieved from http://ezproxy.lib.monash.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=jlh&AN=2012250611&site=ehost-live&scope=site Available from EBSCOhost jlh database.	PhD paper Not sufficiently specific to USR.
Starck, P. L., Sherwood, G. D., & Adams-McNeill, J. (2000). Pain management outcomes: Issues for advanced practice nurses. *Internet Journal of Advanced Nursing Practice*, 4(1), XIX-XX.	Not sufficiently precise.
Stephens, C. T., & Pounds, L. L. (2006). Rupture of a nonaneurysmal aorta secondary to Staphylococcus aortitis: a case report and review of the literature. *Angiology*, 57(4), 506-512.	Not related with USR to the ED.
Twycross, A. (2001). Oral dosing of dexamethasone was as effective as intramuscular dosing for outpatient treatment of children with moderate croup... commentary on Rittichier KK, Ledwith CA. Outpatient treatment of moderate croup with dexamethasone: intramuscular versus oral dosing. PEDIATRICS 2000 Dec; 106:1344-8. *Evidence Based Nursing, 4*(3), 79-79.	Paediatric and odontological study.

Uninsured children: an untapped revenue source? ED enrollment expands services to young patients. (2005). *ED Management, 17*(2), 16-18.	Paediatric study.
Vairo, G., Salustri, A., Trambaiolo, P., Pagnanelli, A., & Marini Grassetti, M. (2003). [Emergency department ultrasonography: impact on patient management and cost effectiveness]. *Minerva Medica, 94*(5), 347-352.	Ultrassonagraphy study.
Vardy, J., Rymaszewski, L., Begbie, K., Anthony, I., Chekroud, M., Clark, K., & Ireland, A. J. (2013). Fracture pathway redesign improves emergency department efficiency. *Emergency Medicine Journal*, 30(10), 876-876. doi: 10.1136/emermed-2013-203113.25	Not sufficiently specific to USR.
Weiss, S. J., Ernst, A. A., Miller, P., & Russell, S. (2002). Repeat EMS transports among elderly emergency department patients. *Prehospital Emergency Care: Official Journal of the National Association of EMS Physicians and The National Association of State EMS Directors*, 6(1), 6-10.	Unclear repeat visit for same complaint. Inconsistent with USR defn.
Wharff, E. A., Ginnis, K. M., & Ross, A. M. (2012). Family-based Crisis Intervention with Suicidal Adolescents in the Emergency Room: A Pilot Study. *Social Work, 57*(2), 133-143. doi: 10.1093/sw/sws017	Psychiatric and pediatric study.
Wills, C. E., & Franklin, M. (2007). The Manchester Self Harm Rule had good sensitivity but poor specificity for predicting repeat self harm or suicide. *Evidence Based Nursing*, 10(2), 61-61.	This is a psychiatric study.
Withy, K., & Davis, J. (2008). Followup after an emergency department visit for asthma: urban/rural patterns. *Ethnicity & Disease*, 18(2 Suppl 2), S2-247-251.	Paediatric study.
Yeeheng, U. (2011). Factors associated with successful resuscitation of out-of-hospital cardiac arrest at Rajavithi Hospital's Narenthorn Emergency Medical Service Center, Thailand. *Asia-Pacific Journal Of Public Health / Asia-Pacific Academic Consortium For Public Health, 23*(4), 601-607. doi: 10.1177/1010539511411902	Not related with USR to the ED.
Zemek, R., Plint, A., Osmond, M. H., Kovesi, T., Correll, R., Perri, N., & Barrowman, N. (2012). Triage nurse initiation of corticosteroids in pediatric asthma is associated with improved emergency department efficiency. *Pediatrics, 129*(4), 671-680. doi: 10.1542/peds.2011-2347	Paediatric study.

Appendix 4: Summary of Included Studies

Paper Details	Academic credibility	Scientific Approach	Context	USR Defn	USR Purpose	USR QI-Type	Outcomes	Code
Aaron, S. D., Vandemheen, K. L., Hebert, P., Dales, R., Stiell, I. G., Ahuja, J., . . . Wells, G. (2003). Outpatient oral prednisone after emergency treatment of chronic obstructive pulmonary disease. *New England Journal of Medicine, **348**(*26), 2618-2625.	PR - Y ISI - Y AS - Y	Randomized, double-blind, placebo-controlled trial study.	Ottawa, Canada.	30 days.	To study the effectiveness of prednisone in reducing the risk of relapse after outpatient exacerbations of chronic obstructive pulmonary disease (COPD).	Patients who were being discharged from the ED after an exacerbation of COPD receive treatment with 40 mg of oral prednisone once daily or identical appearing placebo.	The overall rate of relapse at 30 days was lower in the prednisone group than in the placebo group (27 percent vs. 43 percent, P=0.05), & the time to relapse was prolonged in those taking prednisone (P=0.04).	1:1
Abualenain, J., Frohna, W. J., Smith, M., Pipkin, M., Webb, C., Milzman, D., & Pines, J. M. (2013). The prevalence of quality issues & adverse outcomes among 72-hour return admissions in the emergency department. *The Journal Of Emergency Medicine,* **45**(2), 281-288. doi: 10.1016/j.jemermed.2012.11.012.	PR - Y ISI - Y AS - Y	Retrospective review of a quality assurance program.	Washington DC - USA.	72 hours.	Explored 72-h return admissions & determined the prevalence & predictors for substandard management on the initial visit or any adverse outcome.	Prevalence & predictors for substandard management on the initial visit or any adverse outcome.	Of 741,132 ED visits across 5 years, 3682 (0.5%) were 72-h return admissions.	2:8
Barrett, T. W., Martin, A. R., Storrow, A. B., Jenkins, C. A., Harrell Jr, F. E., Russ, S., . . . Darbar, D. (2011). A clinical prediction model to estimate risk for 30-day adverse events in emergency department patients with symptomatic atrial fibrillation. *Annals of Emergency Medicine, **57**(*1), 1-12.	PR - Y ISI - Y AS - Y	This is a retrospective, observational cohort study.	Nashville TN - USA.	30 days.	To assess whether data available in the ED management of symptomatic atrial fibrillation can estimate a patient's risk of experiencing a 30-day adverse event.	Predictors of 30-day adverse events of atrial fibrillation.	During the 3-year study period, 914 patients accounted for 1,228 ED visits.	1:2
Bernstein, J., Bernstein, E., Dave, A., Hardt, E., James, T., Linden, J., . . . Safi, C. (2002). Trained medical interpreters in the emergency department: effects on services, subsequent charges, & follow-up. *Journal of Immigrant Health, **4**(*4), 171-176.	PR - Y ISI - Y AS - Y	This is a descriptive study.	Boston, Massachusetts , USA..	90 days.	To investigate the impact of an Interpreter Service on intensity of ED services, utilization, & charges.	26,573 ED records from July to November, 1999, resulted in a data set of 500 patients with similar demographic characteristics, chief complaint, acuity, & admission rate.	Non-interpreted patients (NIPs) who did not speak English had the shortest ED stay (LOS) & the fewest tests, IVs & medications; English-speaking patients had the most ED services, LOS, & charges. Among discharged patients, return ED visit & ED visit charges were lowest for interpreted patients.	3:1

Birkhahn, R. H., Wen, W., Datillo, P. A., Briggs, W. M., Parekh, A., Arkun, A., . . . Gaeta, T. J. (2012). Improving patient flow in acute coronary syndromes in the face of hospital crowding. *The Journal Of Emergency Medicine,* **43**(2), 356-365. doi: 10.1016/j.jemermed.2011.06.046.	PR - Y ISI - Y AS - Y	This is an observational cohort study conducted pre- & post-availability of a POC testing platform for cardiac biomarkers.	New York, USA.	30 days.	To measure the effect of bedside point-of-care (POC) cardiac biomarker testing on telemetry unit admissions from the ED. To evaluate the effect telemetry admissions have on ED length of stay (LOS) & overall hospital LOS.	Major measures included number of overall telemetry admissions, EDLOS, hospital LOS, & disposition. Patients were followed at 30 days for significant cardiac events, repeat ED visit or admission, & death.	In the post-implementation period there was a 30% reduction in admissions to telemetry with a 33% reduction in ED LOS & a 20% reduction in hospital LOS. There was a 62% reduction in overall mortality between the pre-implementation period & the post-implementation period.	1:4
Birnbaum, A., Esses, D., Bijur, P., Wollowitz, A., & Gallagher, E. J. (2008). Failure to validate the San Francisco Syncope Rule in an independent emergency department population. *Annals of Emergency Medicine,* **52**(2), 151-159.	PR - Y ISI - Y AS - Y	The study had a single-setting, prospective, observational cohort design.	Bronx, NY, USA.	7 days.	A prospective independent validation of the San Francisco Syncope Rule to identify ED syncope patients with short-term serious outcomes.	Adult patients presenting to a university hospital ED with acute syncope or near syncope.	Sixty-one of 713 (9%) patients met predetermined criteria for serious outcome.	1:2
Brede, C., Hollingsworth, J. M., Faerber, G. J., Taylor, J. S., & Wolf, J. S., Jr. (2010). Medical expulsive therapy for ureteral calculi in the real world: targeted education increases use & improves patient outcome. *The Journal Of Urology,* ***183***(2), 585-589. doi: 10.1016/j.juro.2009.10.019.	PR - N ISI - Y AS - Y	This is a retrospective study.	Michigan, USA.	90 days.	To study the impact of targeted education of ED physicians about medical expulsive therapy & analyzed its impact on patient outcomes & cost.	Retrospective ED data were collected on patients with ureteral stones. Medical expulsive therapy prescribing trends, adverse outcome & total cost related to ureteral calculus diagnosis.	Targeted educational intervention can increase the use of preferred medical expulsive therapy (blockers) in the ED. Medical expulsive therapy decreases the incidence of adverse events by 29% & decreases the total cost associated with ureteral stones by 24%.	1:4

Burström, L., Nordberg, M., Örnung, G., Castrén, M., Wiklund, T., Engström, M. L., & Enlund, M. (2012). Physician-led team triage based on lean principles may be superior for efficiency & quality? A comparison of three emergency departments with different triage models. *Scandinavian Journal of Trauma, Resuscitation & Emergency Medicine, 20.*	PR - Y ISI - Y AS - Y	This is a retrospective study.	Västerås, Sweden.	24 & 72 hours.	To compare the performance of different triage models used in three Swedish EDs.	Data of patients arriving at the three EDs between 08:00- & 21:00 throughout 2008 were analysed by efficiency indicators (length of stay (LOS) including time to physician, time from physician to discharge, & 4-hour turnover rate) & quality indicators (rate of patients left before treatment was completed, USR within 24 & 72 hours, & mortality rate within 7 & 30 days).	USR within 24 hours were significantly lower for physician-led team triage, 1.0%, compared with 2.1%, & 2.5% for nurse/emergency physician, & nurse/junior physician, respectively.	3:2
Calder, L., Tierney, S., Jiang, Y., Gagné, A., Gee, A., Hobden, E., . . . Forster, A. (2014). Patient safety analysis of the ED care of patients with heart failure & COPD exacerbations: a multicenter prospective cohort study. *The American Journal Of Emergency Medicine, 32*(1), 29-35. doi: 10.1016/j.ajem.2013.09.013.	PR - Y ISI - Y AS - Y	This is a multicentre prospective cohort study.	Ottawa, Ontario, Canada.	14 days.	To assess the adherence to evidence-based care & determine the proportion that experienced adverse events.	Outcome data for discharged ED patients Nage 50 with acute heart failure or COPD at five academic EDs. They measured 3 flagged outcomes: return ED visit, admission, or death.	They identified 122 (7.0%) flagged outcomes among 1,718 enrolled patients (61 heart failure, 59 COPD & 2 dual diagnoses). A small proportion of return ED visits were related to index care.	1:4
Calder, L.A., Arnason, T., Vaillancourt, C., Perry, J.J., Stiell, I.G. & Forster, A.J. (2013) How do emergency physicians make discharge decisions? *Emergency Medicine Journa*l, 32(1) 9-14.	PR - Y ISI - Y AS - Y	This is a real-time qualitative survey.	Ottawa, Ontario, Canada.	30 days.	To determine how ED physicians perceive their discharge decisions for high-acuity patients & the impact on adverse events (adverse outcomes associated with healthcare management).	88.9% (32/36) of possible ED physicians for 366 discharge decisions were interviewed . Respondents were mostly male (71.9%) & experienced (53.1% >10 years).	ED physicians stated they used clinical judgement in 87.6% of decisions & evidence in 12.4%. There were 69 flagged outcomes (18.8%) & 10 adverse events. All adverse events were preventable (1 death, 4 admissions, 5 return ED visits).	3:3

Cameron, A., Rodgers, K., Ireland, A., Jamdar, R., & McKay, G. A. (2014). A simple tool to predict admission at the time of triage. *Emergency Medicine Journal*, **32**(3):174-9l	PR - Y ISI - Y AS - Y	This is a multicentre, retrospective, cross-sectional study of routinely collected clinical data.	Glasgow, UK.	28 days.	To create & validate a simple clinical score to estimate the probability of admission at the time of triage.	215 231 presentations were used for model derivation & 107 615 for validation. 6-variables: triage category, age, National Early Warning Score (NEWS), arrival by ambulance, referral source & admission within the last year.	The resulting 6-variable score showed excellent admission/discharge discrimination. Higher scores also predicted early returns for those who were discharged: the odds of subsequent admission within 28 days doubled for every 7-point increase.	3:2
Cardin, S., Afilalo, M., Lang, E., Collet, J.-P., Colacone, A., Tselios, C., . . . Guttman, A. (2003). Intervention to decrease emergency department crowding: does it have an effect on return visits & hospital readmissions? *Annals of Emergency Medicine,* **41**(2), 173-185.	PR - Y ISI - Y AS - Y	Using information from the medical services database, variation between the periods before & after implementation of the intervention in the incidence of USR to any ED was compared between the study hospital & 2 external control hospitals.	Montreal, Quebec, Canada.	7 days .	To evaluate the effect of a multifaceted intervention to decrease emergency department crowding on the incidence of USR to the ED or a hospital ward.	Increased emergency physician coverage, the designation of physician coordinators, & new hospital policies regarding laboratory, consultation, & admission procedures.	No difference was found in the incidence of USR, either for patients discharged from the ED.	3:3
Chiu, S. L. H., Lam, F. M., & Cheung, C. (2007). Admission gatekeeping & safe discharge for the elderly: Referral by the emergency department to the community nursing service for home visits. *Hong Kong Journal of Emergency Medicine,* **14**(2), 74-82.	PR - Y ISI - Y AS - Y	This is a descriptive review analysis.	Lai Chi Kok, Kowloon, Hong Kong.	28 days.	To assess the gatekeeping effect & discharge safety in elderly referrals to the community nursing service (CNS) in a major accident & emergency department (AED).	Data were retrieved from the Accident & Emergency Information System (AEIS) & the Community Based Nursing System (CBNS) of the Hong Kong Hospital Authority (HA).	Altogether 333 patients were accepted, comprising 5% of the total CNS referrals in the hospital: 323 were aged ≥65, 13.8% were living alone, 21.6% had unscheduled return to the AED within 14 days, & 11.7% in 15-28 days.	1:2
Dalal, A. A., Shah, M., D'Souza, A. O., & Rane, P. (2010). Costs of inpatient & emergency department care for	PR - Y ISI - N AS - Y	This is a retrospective, cross-	North Carolina, USA.	30-60 days.	To determine the costs & characteristics of COPD related hospital-based health care in	Data 602 hospitals, 2008 costs of COPD related care among Medicare	In 2008, 15,4% of patients with COPD related ED visit had a repeat visit & 15,5-	5:1

chronic obstructive pulmonary disease in an elderly Medicare population. *Journal of Medical Economics,* **13**(4), 591-598. doi: 10.3111/13696998.2010.521734.		sectional, observational study.			Medicare population.	beneficiaries age > 65 years were calculated for ED visits, simple inpatient admission & complex admissions.	16,5% of those with COPD related admission had a readmission within 60 days.	
Dendukuri, N., McCusker, J., & Belzile, E. (2004). The Identification of Seniors at Risk screening tool: further evidence of concurrent & predictive validity. *Journal of the American Geriatrics Society,* **52**(2), 290-296. doi: 10.1111/j.1532-5415.2004.52073.x.	PR - Y ISI - Y AS - Y	Data from two previous studies were available: Study 1, in which the ISAR scale was developed, & Study 2, in which it was used to identify patients for a randomized trial of a nursing intervention.	Montreal, Canada.	5 months.	To evaluate the validity of the Identification of Seniors at Risk (ISAR) screening tool for detecting severe functional impairment & depression & predicting increased depressive symptoms & increased utilization of health services.	Patients aged 65 & older who were to be released from an emergency department (ED).	Estimates of the AUC for predictive validity for increased depressive symptoms & high utilization of health services ranged from 0.61 to 0.71.	4:1
Di Bari, M., Salvi, F., Roberts, A. T., Balzi, D., Lorenzetti, B., Morichi, V., . . . Marchionni, N. (2012). Prognostic stratification of elderly patients in the emergency department: a comparison between the "Identification of Seniors at Risk" & the "Silver Code". *The Journals Of Gerontology. Series A, Biological Sciences & Medical Sciences,* **67**(5), 544-550. doi: 10.1093/gerona/glr209.	PR - Y ISI - Y AS - Y	This is a cohort study.	Florence, Italy.	6 months.	To compare the Identification of Seniors at Risk (ISAR), using direct patient evaluation, with the Silver Code (SC), based on administrative data.	Subjects aged 75+ years accessing a geriatric ED over an 8-month period were enrolled.	Of 1,632 participants (mean age 84 ± 5.5 years), 75% were ISAR positive, & the sample was homogeneously distributed across the four SC risk categories.	4:1

Feldman, D. E., Huynh, T., Lauriers, J. D., Giannetti, N., Frenette, M., Grondin, F., . . . Pilote, L. (2013). Access to heart failure care post emergency department visit: do we meet established benchmarks & does it matter? *American Heart Journal, 165*(5), 725-732. doi: 10.1016/j.ahj.2013.02.017.	PR - N ISI - Y AS - Y	This is a prospective cohort study.	Quebec, Canada.	2-4 weeks.	To investigate whether (& if so, when) patients with a recent ED visit for HF subsequently consulted with a cardiologist or any physician within the current 2-week benchmarks; to explore predictors of time to physician consultation; & to examine whether delay in physician consultation subsequent to an ED visit was related to adverse events (AEs).	Patients recruited by nurses at 8 hospital EDs & interviewed by telephone within 6 weeks of discharge & subsequently at 3 & 6 months.	Only 30% consulted with a physician within 2 weeks post-ED visit. By 4 weeks, 51% consulted a physician. Over the 6-month follow-up, 26% returned to the ED, 25% were hospitalized, & 9% died.	1:3
Ferre, R. M., Wasielewski, J. N., Strout, T. D., & Perron, A. D. (2009). Tamsulosin for ureteral stones in the emergency department: a randomized, controlled trial. *Annals of Emergency Medicine,* **54**(3), 432. doi: 10.1016/j.annemergmed.2008.12.026.	PR - Y ISI - Y AS - Y	This is a randomized, controlled trial.	Portland, ME.	14 days .	To evaluate the efficacy of a 10-day course of tamsulosin in comparison to standard therapy for the treatment of adult ED patients with distal ureterolithiasis.	Adult ED patients with distal ureteral calculi diagnosed by computed tomography scan. Patients were randomized to receive either a 10-day course of ibuprofen & oxycodone plus tamsulosin or ibuprofen & oxycodone alone.	At 2-, 5-, & 14-day follow-up, there were no clinically important (or statistically significant) differences between the groups for any secondary outcome measure. No adverse events were reported in either group.	1:3
French, D., Zwemer, F. L., Jr., & Schneider, S. (2002). The effects of the absence of emergency medicine residents in an academic emergency department. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine,* **9**(11), 1205-1210.	PR - Y ISI - Y AS - Y	This is a retrospective review of adult ED visits for the period of January 1 through June 30, 2001.	Rochester, NY, USA.	72 hours.	What are the quality effects of an emergency medicine (EM) residency, & the associated 24/7 supervision of residents by faculty, in an academic ED?	Patient care provided by faculty supervising EM residents	No measurable difference for most of the quality indicators studied.	3:1
Geirsson, O. P., Gunnarsdottir, O. S., Baldursson, J., Hrafnkelsson, B., & Rafnsson, V. (2013). Risk of repeat visits, hospitalisation & death after uncompleted & completed visits to the emergency department: a prospective observation study. *Emergency Medicine Journal: EMJ,* **30**(8), 662-668. doi: 10.1136/emermed-2012-201129.	PR - Y ISI - Y AS - Y	This is a prospective observational cohort study.	Reykjavik, Iceland.	30 days.	To evaluate ED patients who leave against medical advice (AMA) & who leave without being seen (WBS) regarding repeat ED visits, hospitalisation & mortality within 30 days.	ED patients 18 years of age or older comparing those patients who were discharged (reference group), & those who left WBS, left AMA, or had the International Classification of Diseases.	Of 107 119 patients, 77 left AMA, 4471 left WBS & 423 had code Z53.2. The HR for returning to the ED within 30 days was 4.79 for AMA patients, 4.84 for WBS patients & 3.67 for Z53.2 patients.	1:2

Guttman, A., Afilalo, M., Guttman, R., Colacone, A., Robitaille, C., Lang, E., & Rosenthal, S. (2004). An emergency department-based nurse discharge coordinator for elder patients: does it make a difference? [corrected] [published erratum appears in ACAD EMERG MED 2005 Jan;**12**(1):12]. *Academic Emergency Medicine, 11*(12), 1318-1327.	PR - Y ISI - Y AS - Y	This is a prospective pre/post study to compare usual discharge care (pre-control) with that of an ED-based discharge planning program (post intervention) for elder patients discharged from the ED.	Montreal, Quebec, Canada.	14 days.	To evaluate the impact of an ED based nurse discharge plan coordinator (NDPC) on unscheduled return visits within 14 days of discharge, satisfaction with discharge recommendations, adherence with discharge instructions, & perception of well-being of elder patients discharged from the ED.	Satisfaction with discharge recommendations, adherence with discharge instructions, & perception of well-being of elder patients discharged from the ED	The unadjusted relative risk for USR visits within 14 days of discharge was 0.79	1:5
Harrison, A., Morrison, L. K., Krishnaswamy, P., Kazanegra, R., Clopton, P., Dao, Q., . . . Maisel, A. S. (2002). B-type natriuretic peptide predicts future cardiac events in patients presenting to the emergency department with dyspnea. *Annals of Emergency Medicine,* **39**(2), 131-138.	PR - Y ISI - Y AS - Y	This is a prospective cohort study.	San Diego, CA, USA.	6 months.	To assess whether B-Type natriuretic peptide (BNP) levels drawn in patients presenting with dyspnea to the ED were a predictor of future cardiac events.	Patients presenting with dyspnea to the ED, BNP levels were determined. Patients were then followed up for 6 months to determine the following end points: death (cardiac & noncardiac), hospital admissions (cardiac), & repeat ED visits for CHF.	The area under the ROC curve using BNP to detect a congestive heart failure (CHF) end point a CHF death, hospital admission, or repeat ED visit—was 0.870.	1:1
Hastings, S. N., Oddone, E. Z., Fillenbaum, G., Sloane, R. J., & Schmader, K. E. (2008). Frequency & predictors of adverse health outcomes in older Medicare beneficiaries discharged from the emergency department. *Medical Care, **46***(8), 771-777. doi: 10.1097/MLR.0b013e3181791a2d.	PR - Y ISI - Y AS - Y	Secondary analysis of data from the Medicare Current Beneficiary Survey.	Durham, North Carolina, USA.	30 days.	To determine the frequency & predictors of adverse outcomes among older adults discharged from the ED.	1851 community-dwelling, Medicare fee-for-service enrollees, ≥ 65 years old who were discharged from the ED between January 2000 & September 2002.	No association was detected between degree of frailty & repeat outpatient ED visits within 30 days (HR 1.06, CI 0.73, 1.54).	1:2

Hastings, S. N., Purser, J. L., Johnson, K. S., Sloane, R. J., & Whitson, H. E. (2008). Frailty predicts some but not all adverse outcomes in older adults discharged from the emergency department. *Journal of the American Geriatrics Society,* **56**(9), 1651-1657. doi: 10.1111/j.1532-5415.2008.01840.x.	PR - Y ISI - Y AS - Y	Secondary analysis of data from the Medicare Current Beneficiary Survey.	Durham, North Carolina, USA.	30 days.	To determine whether frail older adults, based on a deficit accumulation index (DAI), are at greater risk of adverse outcomes after discharge from the ED.	Primary dependent variable was time to first adverse outcome.	No association was detected between degree of frailty & repeat outpatient ED visits.	1:2
Hastings, S. N., Schmader, K. E., Sloane, R. J., Weinberger, M., Goldberg, K. C., & Oddone, E. Z. (2007). Adverse health outcomes after discharge from the emergency department--incidence & risk factors in a veteran population. *Journal Of General Internal Medicine,* **22**(11), 1527-1531.	PR - N ISI - Y AS - Y	This is a retrospective, cohort study at an academically affiliated VA medical center.	Durham, North Carolina, USA.	90 days.	To describe the frequency & type of adverse health outcomes among older veterans discharged from the ED & to determine risk factors associated with adverse outcomes.	A total of 942 veterans ≥ 65 years old discharged from the ED.	More than 1 in 3 older veterans discharged from the ED experienced a significant adverse outcome within 90 days of ED discharge.	1:2
Hayes, B.D., Zaharna, L., Winters, M.E., Feemster, A.A., Browne, B.J. & Hirshon, J.M. (2012) To-Go medications for decreasing ED return visits. *American Journal of Emergency Medicine*, 30(9), 2011-2014.	PR - N ISI - Y AS - Y	This is a comparison between two goups of patients study.	Baltimore, USA.	7 days.	To determine if providing patients with a complete course of antibiotics for select conditions would decrease the rate of return to the emergency department (ED) within 7 days of the initial visit.	In an urban, academic medical center, we compared patients who received medications at discharge (To-Go medications) with patients who received standard care (a prescription at discharge).	For a 1-year expense of $1123, we demonstrated a 50% reduction in ED return visits for patients who were given a free, complete course of antibiotics at discharge for select conditions.	3:7;5:2
Hollingsworth, J. M., Norton, E. C., Kaufman, S. R., Smith, R. M., Wolf, J. S., Jr., & Hollenbeck, B. K. (2013). Medical expulsive therapy versus early endoscopic stone removal for acute renal colic: an instrumental variable analysis. *The Journal Of Urology,* **190**(3), 882-887. doi: 10.1016/j.juro.2013.03.040.	PR - N ISI - Y AS - Y	This is a retrospective observational study.	Ann Arbor, Michigan.	6 weeks.	To investigate if patients treated with medical expulsive therapy have frequent health care encounters due to pain while waiting for the stones to pass.	Data compared 6-week payments as well as frequency of hospitalization & ED revisits associated with an initial course of medical expulsive therapy with those for early endoscopic stone removal.	Findings on medical expulsive therapy are mixed, with lower 6-week payments but more frequent USR visits.	1:1
Horney, C., Schmader, K., Sanders, L. L., Heflin, M., Ragsdale, L., McConnell, E., . . . Hastings, S. N. (2012). Health care utilization before & after an outpatient ED visit in older people. *The American*	PR - Y ISI - Y AS - Y	This is a retrospective study.	Durham, North Carolina, USA.	90 days .	To examine the relationships between health care use before & after an ED visit among older adults.	Associations between ED & other types of health care.	Despite more Primary care physician use in this population, frequent ED use associated with increased risk of USR ED visit.	1:5

Journal Of Emergency Medicine, ***30***(1), 135-142. doi: 10.1016/j.ajem.2010.10.036.								
Hu, K.-W., Lu, Y.-H., Lin, H.-J., Guo, H.-R., & Foo, N.-P. (2012). Unscheduled return visits with & without admission post emergency department discharge. *The Journal Of Emergency Medicine,* **43**(6), 1110-1118. doi: 10.1016/j.jemermed.2012.01.062.	PR - Y ISI - Y AS - Y	This is a multivariate logistic regression study.	Chia-Yi City 60002, Taiwan.	3 days.	To investigate the differences between unscheduled return visit admissions (URVA) & unscheduled return visit no admissions (URVNA) after ED discharge.	Doctor-based return visit, Patient-based return visit, Illness-based return visit, Health care-based return visit.	The most common reason for the return visit was an illness-based factor (47.9%). Compared to URVNA patients, unscheduled return visit admissions had higher prevalence rates for old age, non-ambulatory status, high-grade triage, & underlying diseases.	2:3
Huang, Y. C., Lin, M. S., & Lin, H. H. (2012). Comparison of emergency physicians & internists regarding core measures of care for admitted emergency department boarders with pneumonia. *Journal of Acute Medicine,* **2**(2), 50-54.	PR - Y ISI - Y AS - Y	This is a retrospective, cross-sectional study.	Chiayi City 60002, Taiwan.	30 days.	To compare quality of cares & short-term outcomes in emergency department boarders admitted for pneumonia cared by the emergency physician (EP) & the internist.	Pneumonia patients, aged 18 years or older, who boarded in the ED longer than 6 hours. Their demographics, comorbidities, symptoms, vital signs, & laboratory results were collected.	In short-term outcomes, no difference was found in length of stay, late ICU admission, unscheduled ED returns, & 30-day readmission or mortality rates.	1:2
Imsuwan, I. (2011). Characteristics of unscheduled emergency department return visit patients within 48 hours in Thammasat University Hospital. *Journal of the Medical Association of Thailand = Chotmaihet thangphaet, 94 Suppl 7,* S73-S80.	PR - Y ISI - AS - N	This is a retrospective observational study.	Pathumthani, Thailand.	48 hours.	To determine rate, common initial presentation & cause of USR ED visits within 48 hours at Thammasat University Hospital.	Patients who return visit within 48 hours at Thammasat University Hospital.	A total of 307 (0,92%) patients USR to ED within 48 hours during August 1, 2009 to July31, 2010. The most common chief complaint were dyspnea, abdominal pain & bleeding per vagina.	2:1
Khan, N. U., Razzak, J. A., Saleem, A. F., Khan, U. R., Mir, M. U., & Aashiq, B. (2011). Unplanned return visit to emergency department: a descriptive study from a tertiary care hospital in a low-income country. *European Journal Of Emergency Medicine: Official Journal Of The European Society For Emergency Medicine,* **18**(5), 276-278. doi: 10.1097/MEJ.0b013e3283449100.	PR - N ISI - Y AS - Y	This is a retrospective study.	Karachi, Pakistan.	48 hours.	To determine the incidence, causes, & factors associated with unplanned return visits to ED of a tertiary care centre in a low-income country.	Chart review of all patients who had unplanned returned visit to our emergency department within 48h of their initial visit during a 1-year study period.	The incidence of unplanned revisits is 2%. Two-thirds (69%) of these patients were adults. The most common presenting complaint was fever (29%). During return visits 55% of patients required admission.	2:1

Kirby, S. E., Dennis, S. M., Jayasinghe, U. W., & Harris, M. F. (2012). Unplanned return visits to emergency in a regional hospital. *Australian Health Review: A Publication Of The Australian Hospital Association,* **36**(3), 336-341. doi: 10.1071/AH11067.	PR - Y ISI - Y AS - Y	This is a retrospective analysis of data from the ED (2008 data) at a publicly funded 150 bed regional hospital in south-eastern NSW, Australia.	Sydney, NSW 2052, Australia.	28 days.	To determine the patient characteristics associated with USR, using routinely collected hospital data, to assist in developing strategies to reduce their occurrence.	ED data from a regional hospital, service usage & demographic patient characteristics on USRs.	Five per cent of patients presented with USRs. Older patients, those with minor & low urgency conditions & with non-psychotic mental health conditions, those presenting during winter & after hours were significantly more likely to present as USRs.	2:2
Kuan, W. S., & Mahadevan, M. (2009). Emergency unscheduled returns: can we do better? *Singapore Medical Journal,* **50**(11), 1068-1071.	PR - Y ISI - Y AS - Y	This was a retrospective record review of patients presenting to the ED.	Singapore.	72 hours.	To identify the reasons for USR to the ED, paying particular attention to system, physician & patient factors. Its purpose is to highlight inadequacies & plan strategies to reduce re-attendance.	All USR to ED within 72 hours of initial visit were identified between January 2005 & June 2005. 842 cases were reviewed to identify reasons for USR.	There were a total of 842 (2.2%) USR to the ED. 50 patients returned for a third time. Factors examined included chief complaint at initial presentation, discharge diagnosis, category of treating physician, ED time band, day of the week & demographical data (age, gender, educational level & economic status).	2:1
La Mantia, M. A., Platts-Mills, T. F., Biese, K., Khandelwal, C., Forbach, C., Cairns, C. B., . . . Kizer, J. S. (2010). Predicting hospital admission & returns to the emergency department for elderly patients. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine,* **17**(3), 252-259. doi: 10.1111/j.1553-2712.2009.00675.x.	PR - Y ISI - Y AS - Y	This is a retrospective study.	Chapel Hill, NC, USA.	30 days.	To identify elderly patients with a high likelihood of hospital admission or subsequent return to the ED might facilitate the development of interventions to expedite the admission process, improve patient care, & reduce overcrowding.	All visits by patients 75 years of age or older during 2007 at an academic ED serving a large community of elderly were reviewed.	Of 4,873 visits, 3,188 resulted in admission (65.4%). Regression modeling identified five variables statistically related to the probability of USR & admission: age, triage score, heart rate, diastolic blood pressure, & chief complaint.	2:2; 2:3

Lee, W. C., Lin, H. L., Kuo, L. C., Chen, C. W., Cheng, Y. C., Lin, T. Y., . . . Chan, H. M. (2013). Early predictors of narcotics-dependent patients in the emergency department. *Kaohsiung Journal of Medical Sciences, 29*(6), 319-324.	PR - Y ISI - Y AS - Y	This is a retrospective study with prospective data collection.	Kaohsiung, Taiwan.	72 hours.	To identify the clinical presentations & manifestations of drug-dependent patients & how they differ from patients without drug dependence.	Patients with suspected drug dependence who were undiagnosed at first & then treated for some kind of reported pain at the ED. Patients who were confirmed to have narcotics dependence were compared with control patients in a ratio of 1:3 matching for age, gender, disease, & clinical diagnoses.	26 of 223 patients treated for pain were found to be drug dependent (12 males & 14 females). The average dose of narcotics used was higher than the control group. Numbers of patients making USR to the ED within 24 hours were significant.	1:1
Martin-Gill, C., & Reiser, R. C. (2004). Risk factors for 72-hour admission to the ED. *The American Journal Of Emergency Medicine, 22*(6), 448-453.	PR - Y ISI - Y AS - Y	This is a retrospective study of Patients.	Charlottesville, Virginia.	72 hours.	To identify risk factors for return & admission within 72 hours of discharge from the ED.	Patients of the University of Virginia Medical Center, who were discharged from the ED, returned to the ED within 72 hours, & were admitted on return was undertaken.	The highest risk initial diagnosis categories were mental disorder (1.2%), genitourinary system (0.93%), & symptom-based diagnoses (0.76%). Also, a high proportion of patients arrived by ambulance.	2:2
McCusker, J., Cardin, S., Bellavance, F., & Belzile, E. (2000). Return to the emergency department among elders: patterns & predictors. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 7*(3), 249-259.	PR - Y ISI - Y AS - Y	This was an observational cohort study.	Montreal, Quebec, Canada.	30 days.	To describe the pattern of return visits to the ED among elders over the six months following an index visit; to identify the predictors of early return & frequent return; & to evaluate a newly developed screening tool for functional decline, Identification of Seniors At Risk (ISAR), with regard to its ability to predict USR.	Subjects were patients aged 65 years or more who visited the EDs of four Canadian hospitals during the weekday shift over a three-month recruitment period.	Among 1,122 patients released from the ED, 492 (43.9%) made one or more return visits; 216 (19.3%) returned early & 84 (7.5%) returned frequently. Earlier returns were more likely than later returns to be for the same diagnosis ($p = 0.003$).	1:1

McCusker, J., Dendukuri, N., Tousignant, P., Verdon, J., Poulin de Courval, L., & Belzile, E. (2003). Rapid two-stage emergency department intervention for seniors: impact on continuity of care. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 10*(3), 233-243.	PR - Y ISI - Y AS - Y	This is a multisite randomized controlled trial.	Montreal, Quebec, Canada.	30 days.	To investigate the effects of the intervention on the process of care at, & during the month after, the ED visit.	Referrals & visits to the primary physician & to the local community health center, for home care or other services, & return ED visits.	Intervention group patients were more likely to make a return visit to the ED.	1:1
McCusker, J., Ionescu-Ittu, R., Ciampi, A., Vadeboncoeur, A., Roberge, D., Larouche, D., . . . Pineault, R. (2007). Hospital characteristics & emergency department care of older patients are associated with return visits. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 14*(5), 426-433.	PR - Y ISI - Y AS - Y	This is a multilevel multivariate analyses of provincial databases in the province of Quebec, Canada, & a survey of ED geriatric services.	Montreal, Quebec, Canada.	7 days.	To explore hospital characteristics & indicators of ED care of older patients associated with return visits to the ED.	Characteristics of the hospitals included location, no ED beds, ED resources, & geriatric services in the hospital & the ED. Indicators of ED care at the initial visit included day of the visit, availability of hospital beds, & relative crowding. The main outcome was time to initial USR at ED.	More limited ED resources, fewer than 12 ED beds, no geriatric unit, no social worker in the ED, fewer available hospital beds at the time of the ED visit, & an ED visit on a weekend are associated with USRs.	2:1
McCusker, J., Roberge, D., Ciampi, A., Silva, R. B. D., Vadeboncoeur, A., Larouche, D., . . . Belzile, E. (2012). Outcomes of community-dwelling seniors vary by type of emergency department. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 19*(3), 304-312. doi: 10.1111/j.1553-2712.2012.01295.x.	PR - Y ISI - Y AS - Y	This is a cohort study using Canadian provincial administrative databases.	Montréal, Quebec, Canada.	30 days.	To compare the characteristics & 6-month outcomes of community-dwelling seniors in Quebec, Canada, who visited three different ED types & to explore whether the differences in outcomes by ED type were seen among subgroups of seniors.	A community-dwelling seniors who visited the 68 EDs during a 14-month period.	During the 6 months after the ED visit, the rate of serious outcomes was higher & the rate of outpatient ED visits was lower for the most specialized compared to the least specialized EDs, even after adjustment for patient characteristics. The differences in these outcomes by ED type were attenuated among older patients & those with greater comorbidity.	2:1;2:7

Metlay, J. P., Camargo, C. A., Jr., MacKenzie, T., McCulloch, C., Maselli, J., Levin, S. K., . . . Gonzales, R. (2007). Cluster-randomized trial to improve antibiotic use for adults with acute respiratory infections treated in emergency departments. *Annals of Emergency Medicine, 50*(3), 221-230.	PR - Y ISI - Y AS - Y	This is a cluster randomized controlled trial study.	San Francisco, CA, USA.	2 weeks.	To evaluate the effectiveness of an educational program in hospital EDs targeting reduction in antibiotic overuse for acute respiratory tract infections.	Interventions on antibiotic use for acute respiratory tract infections among a national sample of Veterans Administration (VA) and non-VA hospitals.	There were no significant differences between control and intervention sites in the proportions of upper respiratory tract infection/bronchitis patients with USR ED visits or in overall visit satisfaction.	1:4
Miller, A. H., Nazeer, S., Pepe, P., Estes, B., Gorman, A., & Yancy, C. W. (2008). Acutely decompensated heart failure in a county emergency department: a double-blind randomized controlled comparison of nesiritide versus placebo treatment. *Annals of Emergency Medicine, 51*(5), 571-578. doi: 10.1016/j.annemergmed.2007.12.003.	PR - Y ISI - Y AS - Y	This is a prospective, randomized, double-blinded, placebo-controlled trial study.	Dallas, TX, USA.	30 days.	To examine the effect of an 8-hour infusion of nesiritide on the composite of return to the ED or hospitalization at 30 days.	Infusion of nesiritide (in addition to protocol-specified standard therapy) in acutely decompensated congestive heart failure patients from an urban patient population consisting of predominately blacks & Hispanics.	The primary outcome measure of return visit to the ED or hospitalization at 30 days was higher for nesiritide (41.5%) than placebo (39.6%; absolute difference 1.9%; 95% CI – 17.2% to 21.1%).	1:1
Moore, G., Gerdtz, M., Manias, E., Hepworth, G., & Dent, A. (2007). Socio-demographic & clinical characteristics of re-presentation to an Australian inner-city emergency department: implications for service delivery. *BMC Public Health, 7,* 320-320.	PR - Y ISI - Y AS - Y	This is a retrospective cohort study.	Parkville, Melbourne, Australia.	28 days.	To describe the socio-demographic & clinical characteristics of emergency department re-presentations.	ED presentations occurring over a 24-month period to an Australian inner-city hospital.	From 64,147 presentations to the ED the USR rate was 18.0% (n= 11,559) of visits & 14.4% (5,894/40,942) of all patients.	2.2
Nash, K., Zachariah, B., Nitschmann, J., & Psencik, B. (2007). Evaluation of the fast track unit of a university emergency department. *Journal Of Emergency Nursing: JEN: Official Publication Of The Emergency Department Nurses Association, 33*(1), 14-20.	PR - Y ISI - Y AS - Y	This is an exploratory descriptive study utilizing a retrospective electronic chart review & prospective patient satisfaction survey as a collect data.	Galveston, Tex, USA.	72 hours.	To evaluate the efficacy of the newly developed fast track (FT) area in a University-affiliated ED.	All charts were included for patient visits to the FT area from September 1, 2004, through February 28, 2005 (N = 5995), & charts were included for patient visits to the MC area from September 1, 2003, through February 28, 2004 for comparison (N = 9130).	Of the 5995 patients seen in the FT area, 172 had USR to the ED within 3 days (2.3%), although none required hospital admission.	3:4

Naughton, C., Drennan, J., Treacy, P., Fealy, G., Kilkenny, M., Johnson, F., & Butler, M. (2010). The role of health & non-health-related factors in repeat emergency department visits in an elderly urban population. *Emergency Medicine Journal: EMJ, 27*(9), 683-687. doi: 10.1136/emj.2009.077917	PR - Y ISI - Y AS - Y	This is a retrospective study.	Dublin, Ireland.	6 months.	To identify health & non-health factors associated with repeat ED attendance, defined as one or more visits in the previous 6 months in patients aged 65 years or older, & to examine the interaction between social & health factors.	Patients who were aged 65 years or older, residing in the community, had no significant cogitative impairment that would preclude giving informed consent, & spoke English.	ED revisits were reported by 37% of this elderly population. Independent risk factors for a USR were previous hospital admission.	2:2
Nuñez, S., Hexdall, A., & Aguirre-Jaime, A. (2006). Unscheduled returns to the emergency department: an outcome of medical errors? *Quality & Safety in Health Care, 15*(2), 102-108.	PR - Y ISI - Y AS - Y	This is a prospective unmatched case-control study.	Canary Islands, Spain.	72 hours.	To identify factors associated with this quality care indicator.	Association with medical errors & patient care (prognosis, diagnosis, follow up treatment, age).	The main factor associated with unscheduled returns was error in prognosis. Advanced age & a chief complaint of dyspnoea were also associated with USR & with admission to hospital.	2:1
Patel, S. N., Tsai, C. L., Boudreaux, E. D., Kilgannon, J. H., Sullivan, A. F., Blumenthal, D., & Camargo, C. A., Jr. (2009). Multicenter study of cigarette smoking among patients presenting to the emergency department with acute asthma. *Annals of Allergy, Asthma & Immunology, 103*(2), 121-127. doi: 10.1016/S1081-1206(10)60164-0	PR - Y ISI - Y AS - Y	This is a retrospective study.	Boston, USA.	48 hours.	To determine the smoking prevalence among ED patients with acute asthma & to investigate the relationships between smoking & acute asthma severity.	A 63-site medical record review study of ED patients, ages 14 to 54 years, with a principal diagnosis of acute asthma was performed.	No difference was found in USR within 48 hours.	1:2
Quinn, J. V., Stiell, I. G., McDermott, D. A., Sellers, K. L., Kohn, M. A., & Wells, G. A. (2004). Derivation of the San Francisco Syncope Rule to predict patients with short-term serious outcomes. *Annals of Emergency Medicine, 43*(2), 224-232.	PR - Y ISI - Y AS - N	This is a prospective cohort study.	Ottawa, Ontario, Canada.	7 days.	To describe the derivation of the San Francisco Syncope Rule to help predict short-term serious outcomes.	ED patients presenting with syncope or near syncope.	There were 684 visits for syncope, & 79 of these visits resulted in patients' experiencing serious outcomes.	1:2
Rame, J. E., Sheffield, M. A., Dries, D. L., Gardner, E. B., Toto, K. H., Yancy, C. W., & Drazner, M. H. (2001). Outcomes after emergency department discharge with a primary diagnosis of heart failure. *American Heart Journal, 142*(4), 714-719.	PR - Y ISI - Y AS - Y	This a retrospective study.	Dallas, Texas, USA.	3 months.	To characterize the clinical course of patients discharged from the ED with a primary diagnosis of chronic heart failure (CHF) & to identify risk factors for adverse events in this population.	Charts were reviewed from all 112 patients discharged from the Parkland Memorial Hospital ED with a primary diagnosis of CHF from October to December 1998.	Within 3 months of the index ED visit, 61% of the study population met the composite end point. The median time to failure of outpatient therapy was 30 days.	1;2

Rehmani, R., & Amatullah, A. F. (2008). Quality improvement program in an emergency department. *Saudi Medical Journal, 29*(3), 418-422.	PR - Y ISI - Y AS - N	This program involved monthly data collection and analysis, data-driven process change, staff education in the core concepts of quality, and data reanalysis from the years 2003-2006	Al-Hasa, Kingdom of Saudi Arabia.	48 hours.	To describe the quality assurance/improvement program in ED.	Data captured during the program included census data, chart review, and focused clinical audits. Continuous quality improvement measures collected at the beginning of the program and quarterly included: 1) quality indicators (length of stay [LOS] and rates of left against medical advice [AMA] or left without being seen [LWBS]), 2) percentage of patients that stay ≥3 hours in ED, unscheduled returns within 48 hours, inter-hospital transfer data, sentinel events tracking rates, and 3) nature of patient complaints.	The program demonstrated improvement in all measured areas. Despite an increase in patient volume of 47% to 51,698 visits/year, the mean monthly LOS remained static, the USR dropped by 50%, and patients leaving AMA decreased from 1.5% to 1.2%, and LWBS decreased from 1.6% to 0.8%. The rate of complaints decreased 5 fold.	3:8
Rising, K. L., White, L. F., Fernandez, W. G., & Boutwell, A. E. (2013). Emergency department visits after hospital discharge: a missing part of the equation. *Annals of Emergency Medicine, 62*(2), 145-150. doi: 10.1016/j.annemergmed.2013.01.024	PR - Y ISI - Y AS - N	This is a retrospective cohort study.	Boston, MA, USA.	30 days.	To characterize the frequency of ED utilization within 30 days of inpatient hospital discharge.	Patient-level and visit-level data from both inpatient and ED databases. All inpatient discharges from January 1 to May 31, 2010, were followed forward to determine whether any ED visits occurred within the subsequent 30 days.	Nearly one quarter (n3,695; 23.8%) of these discharges resulted in at least 1 USR to ED visit within the subsequent 30 days (total return ED visits 4,077), and more than half of the subsequent USR ED visits (n2,204; 54%) did not lead to hospital readmission.	2:4
Ross, M. A., Compton, S., Richardson, D., Jones, R., Nittis, T., & Wilson, A. (2003). The use and effectiveness of an emergency department observation unit for elderly patients. *Annals of Emergency Medicine, 41*(5), 668-677.	PR - Y ISI - Y AS - Y	This is a retrospective observational cohort study.	Detroit, MI., USA.	30 days.	To describe the use of an ED observation unit by elderly patients (≥65 years), to determine whether the ED observation unit is effective for them in terms of ED observation unit length of stay and hospital admission rates, and to compare efficacy and return visit rates	Diagnosis, length of stay, hospital admission rates, and 30-day return visit rates were compared between younger & older patients.	Thirty-day related return visit rates between age groups were similar (9.4% versus 7.6%).	1:2

					between younger & older patients.			
Ross, M. A., Hemphill, R. R., Abramson, J., Schwab, K., & Clark, C. (2010). The recidivism characteristics of an emergency department observation unit. *Annals of Emergency Medicine, 56*(1), 34-41. doi: 10.1016/j.annemergmed.2010.02.012.	PR - Y ISI - Y AS - Y	This is a prospective observational cohort study.	Atlanta, GA, USA.	14 days .	To describe the recidivism characteristics of an adult ED observation unit population & determine whether rates differ according to demographic or clinical features.	Characteristcs of patients who USR; demographic or clinical features.	Of USRs, 86.3% of patients had only 1 return visit, 11.6% had 2, & 2.1% had 3 or more; 4.2% of returns occurred at an affiliated hospital.	1:2; 2:2
Rosychuk, R. J., Marrie, T. J., Voaklander, D. C., Klassen, T. P., Senthilselvan, A., & Rowe, B. H. (2010). Presentations to EDs in Alberta, Canada, for pneumonia: a large population-based study. *CHEST, 138*(6), 1363-1370. doi: 10.1378/chest.09-2829.	PR - Y ISI - Y AS - Y	This a retrospective study.	Alberta, Canada.	7 days.	To describe the epidemiology of pneumonia presentations to Eds in the province of Alberta, Canada.	Pneumonia presentations to EDs.	In a discharged subset, 4.8% had a repeat ED visit within 7 days.	1:2
Rowe, B. H., Voaklander, D. C., Wang, D., Senthilselvan, A., Klassen, T. P., Marrie, T. J., & Rosychuk, R. J. (2009). Asthma presentations by adults to emergency departments in Alberta, Canada: a large population-based study. *CHEST, 135*(1), 57-65. doi: 10.1378/chest.07-3041.	PR - Y ISI - Y AS - Y	This a retrospective study.	Alberta, Canada.	7 days.	To describe the epidemiology of asthma presentations to EDs made by adults in the province of Alberta, Canada.	Asthma presentations to EDs.	Hospital admission occurred in 9.8% of the cases; 6.4% had a repeat ED visit within 7 days.	1:2
Salazar, A., Corbella, X., Onaga, H., Ramon, R., Pallares, R., & Escarrabill, J. (2001). Impact of a resident strike on emergency department quality indicators at an urban teaching hospital. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 8*(8), 804-808.	PR - Y ISI - Y AS - Y	This is an observational study.	Barcelona, Spain.	7 days.	To evaluate the indicators of activity & quality within the ED during a resident physicians' strike.	Data were compared between all patients treated in the ED during the SP & those treated during the NSP, matched by the weekday.	There was no statistically significant difference in the number of emergency USRs & the mortality rate between the SP & the NSP.	3:1

Salvi, F., Morichi, V., Grilli, A., Giorgi, R., Spazzafumo, L., Polonara, S., . . . Dessì-Fulgheri, P. (2008). A geriatric emergency service for acutely ill elderly patients: pattern of use & comparison with a conventional emergency department in Italy. *Journal of the American Geriatrics Society, 56*(11), 2131-2138. doi: 10.1111/j.1532-5415.2008.01991.x.	PR - Y ISI - Y AS - Y	This is a secondary analysis of a prospective observational cohort study.	Ancona, Italy.	Early: 30 days. Late: 6 months.	To adequately address the complex needs of older adults presenting to emergency departments (EDs). Dedicated ED facilities with a specific organization (e.g., geriatric EDs (GEDs)) have been advocated. To describe one of the few GED experiences in the world & its outcomes compared with those of a conventional ED (CED).	200 acutely ill ED patients aged 65 & older who were enrolled from two urban EDs in an Italian city with 100,000 inhabitants (Ancona) to test the validity of the Identification of Seniors At Risk (ISAR) screening tool.	At 30 days, 13 patients (6.5%), five of them GED patients, had died, & six (3%) had been in the hospital since the time of recruitment; of the remaining 181 patients, 48 (26.5%) required one or more ED USR. Late & frequent ED USR rates were not significantly different between the two EDs.	1:3; 2:7
Salvi, F., Morichi, V., Grilli, A., Spazzafumo, L., Giorgi, R., Polonara, S., . . . Dessì-Fulgheri, P. (2009). Predictive validity of the Identification of Seniors At Risk (ISAR) screening tool in elderly patients presenting to two Italian Emergency Departments. *Aging Clinical & Experimental Research, 21*(1), 69-75.	PR - N ISI - Y AS - Y	This is a prospective observational cohort study.	Ancona, Italy.	Early 30 days. Late 6 months.	To evaluate the predictive validity of Identification of Seniors At Risk (ISAR) for elderly patients presenting to Italian ED.	Identifiers & triage, clinical & social data were collected of patients presenting to two urban ED.	ISAR can be used as a screening test to identify Italian elderly ED patients who have an increased 6-month risk of death, LTC placement, functional decline, ED revisit, or hospitalization.	1:1
Salvi, F., Morichi, V., Lorenzetti, B., Rossi, L., Spazzafumo, L., Luzi, R., . . . Lattanzio, F. (2012). Risk stratification of older patients in the emergency department: comparison between the Identification of Seniors at Risk & Triage Risk Screening Tool. *Rejuvenation Research, 15*(3), 288-294. doi: 10.1089/rej.2011.1239	PR - Y ISI - Y AS - Y	This is a prospective observational study with 6 months follow-up.	Ancona, Italy.	30 days.	To compare the Identification of Seniors at Risk (ISAR) & Triage Risk Screening Tool (TRST), based on direct patient evaluation.	Seniors At Risk & Triage Risk Screening Tool.	In the 6-month follow-up of patients discharged alive, the tools predicted comparably ED USR (ISAR, 0.60; TRST, 0.59), hospital admission (ISAR, 0.63; TRST, 0.60), & mortality (ISAR, 0.74; TRST, 0.73). Similar performance observed in the subgroup of participants discharged directly from the ED.	1:3

Sauvin, G., Freund, Y., Saïdi, K., Riou, B., & Hausfater, P. (2013). Unscheduled return visits to the emergency department: consequences for triage. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 20*(1), 33-39. doi: 10.1111/acem.12052. Erratum: Unscheduled return visits to the emergency department: Consequences for triage (Academic Emergency Medicine (2013) 20 (33-39)). (2013). Academic Emergency Medicine, 20(3), 327.	PR - Y ISI - Y AS - N	This is a 1-year retrospective study.	Paris, France.	8 days.	To conduct a survey of USRs to the ED within 8 days of a prior visit, to test the hypothesis that patients making these USRs are disproportionately likely to suffer short-term mortality or manifest a need for any admission to the hospital (adverse events [AEs]) at the time of the USR, compared to patients triaged at the same level who did not have an unscheduled ED revisit within 8 days.	Triage score - patients with an USR to the ED of an urban, 1,600-bed tertiary care center & teaching hospital.	2% of patients had an USR. the median triage nurse score was not significantly different between the first visit & the USR.	2:5
Schrock, J. W., Reznikova, S., & Weller, S. (2010). The effect of an observation unit on the rate of ED admission & discharge for pyelonephritis. *The American Journal Of Emergency Medicine, 28*(6), 682-688. doi: 10.1016/j.ajem.2009.03.003	PR - Y ISI - Y AS - Y	This is a retrospective cohort study.	Austin, TX, USA	7 days	To determine if the opening of an adult ED observation unit (OU) would impact the rate of hospital admission & ED discharges for pyelonephritis.	Adult patients with pyelonephritis. Primary outcomes were rates of admission, ED discharge, & USR ED visits before & after the opening of OU.	Creation of an OU significantly reduced hospital admissions for pyelonephritis also significantly reduced ED discharges to home for pyelonephritis. ED recidivism was unchanged by opening the OU.	3:5
Schwartzman, K., Duquette, G., Zaoudé, M., Dion, M. J., Lagacé, M. A., Poitras, J., & Cosio, M. G. (2001). Respiratory day hospital: A novel approach to acute respiratory care. *CMAJ, 165*(8), 1067-1071.	PR - Y ISI - Y AS - N	This is a retrospective cohort study	Montreal, Que., Canada.	no exist.	To describe the program in a hospital with a major focus on the acute treatment of obstructive airways disease. Its initial outcomes & its costs.	Respiratory disease requiring urgent acute treatment; Respiratory disease requiring urgent investigation.	Between 1996/97 & 1998/9 the proportion of patients requiring transfer to overnight care decreased from 22% to 14%; complications & USR to ED were rare.	4:2

Shaver, K. J., Marsan, R. J., Jr., Sease, K. L., Shofer, F. S., Sites, F. D., & Hollander, J. E. (2004). Impact of a negative evaluation for underlying coronary artery disease on one-year resource utilization for patients admitted with potential acute coronary syndromes. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 11*(12), 1272-1277.	PR - Y ISI - Y AS - Y	This is a prospective cohort study.	Philadelphia, PA, USA.	129 days - 124 days - 140 days.	To determine whether, in patients admitted with a potential acute coronary syndrome, a negative evaluation for underlying coronary artery disease would reduce ED & hospital revisits over the subsequent year compared with patients who did not receive an evaluation for underlying coronary artery disease.	Patients who had a negative evaluation for underlying coronary disease were compared with patients who were not evaluated for underlying coronary artery disease for subsequent ED visits, hospital admissions, & cardiac resource utilization over the year following the index visit via a health system wide computerized record review.	Patients with no evaluation for underlying coronary artery disease & patients with a negative evaluation had similar likelihoods of a USR ED visit & repeat hospital admission.	1:1
Silbergleit, R., Kronick, S. L., Philpott, S., Lowell, M. J., & Wagner, C. (2006). Quality of emergency care on the night shift. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 13*(3), 325-330.	PR - Y ISI - Y AS - Y	This is a retrospective observational study.	Arbor, MI.	48 hours.	To determine whether performance decrements at night actually translate into worsened measures of quality of patient care in the emergency department (ED).	Quality indicators, including early mortality (deaths occurring after arrival in the ED or within 48 hours of hospital admission), frequency of return after ED discharge, time to thrombolysis in acute myocardial infarction (AMI), frequency of aspirin use in AMI, & performance of endotracheal intubation.	Quality indicators used in this study do not demonstrate marked deficits in patient care occurring at night. There was no effect of time of day on 1,828 USRs with admission after ED discharge.	2:6
Sin, D. D., Bell, N. R., Svenson, L. W., & Man, S. F. P. (2002). The impact of follow-up physician visits on emergency readmissions for patients with asthma & chronic obstructive pulmonary disease: a population-based study. *The American Journal Of Medicine, 112*(2), 120-125.	PR - Y ISI - Y AS - Y	This is a retrospective cohort study.	Alberta, Canada.	90 days.	To examine the relation between follow-up office visits after emergency discharge & the risk of emergency readmissions in patients with asthma or chronic obstructive pulmonary disease (COPD).	Patients in Alberta, Canada, who had at least one emergency visit for asthma or COPD between April 1, 1996, & March 31, 1997.	Follow-up visits were associated with a significant reduction in the 90-day risk of an emergency USR confidence interval.	1:1

Stein, J. C., Navab, B., Frazee, B., Tebb, K., Hendey, G., Maselli, J., & Gonzales, R. (2011). A randomized trial of computer kiosk-expedited management of cystitis in the emergency department. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine, 18*(10), 1053-1059. doi: 10.1111/j.1553-2712.2011.01167.x.	PR - Y ISI - Y AS - Y	This is a prospective unblinded randomized trial.	San Francisco, CA.	Anytime.	To assess the efficiency & safety of an interactive computer kiosk module for the management of uncomplicated urinary tract infections (UTI) in EDs.	The kiosk evaluated women for uncomplicated UTI, & eligible patients were randomized to expedited management or usual ED care according to urine culture results, curation of ED visit, time to illness resolution, return visits, & satisfaction with care.	They had similar time to illness resolution, number of USRs, & satisfaction with care.	1:3; 3:6
Touquet, R., Csipke, E., Holloway, P., Brown, A., Patel, T., Seddon, A. J., . . . Crawford, M. J. (2008). Resuscitation room blood alcohol concentrations: one-year cohort study. *Emergency Medicine Journal, 25*(11), 752-756. doi: 10.1136/emj.2008.062711.	PR - Y ISI - Y AS - N	This is a single-site prospective cohort study.	London, UK.	6 months.	To clarify the relationship between presenting clinical condition & blood alcohol concentration (BAC) among adult patients admitted to a resuscitation room (RR) of an ED in order to help guide clinical practice.	BAC over a 12-month period from all blood samples taken from patients initially presenting to the RR, with the exception of direct admissions to specialists & transfers from other hospitals.	Those with a positive BAC had a higher rate of USR to ED in the following 6 months.	1:1
Trivedy, C. R., & Cooke, M. W. (2013). Unscheduled return visits (URV) in adults to the emergency department (ED): A rapid evidence assessment policy review. *Emergency Medicine Journal*.	PR - Y ISI - Y AS - Y	This is a rapid evidence assessment study (LR).	West Midlands, UK.	Variation 24 h to undefined.	To perform a rapid evidence assessment policy-based literature review of studies that have looked at USRs presenting to the ED.	A rapid evidence assessment using SCOPUS & PUBMED was used to identify articles looking at unplanned returns to EDs in adults; those relating to specific complaints or frequent attenders were not included.	A reported USR rate of between 0.4%& 43.9% with wide variation in the time period defined for a USR, which ranged from 24 h to undefined. Thematic analysis identified four broad subtypes of USRs: related to patient factors, to the illness, to the system or organisation & to the clinician. This review informed the development of national clinical quality indicators for England. USR rates may serve as an important indicator of quality performance within the ED.	2:8

Tsai, S.-C., Liu, L.-N., Tang, S.-T., Chen, J.-C., & Chen, M.-L. (2010). Cancer pain as the presenting problem in emergency departments: incidence & related factors. *Supportive Care In Cancer: Official Journal Of The Multinational Association Of Supportive Care In Cancer, 18*(1), 57-65. doi: 10.1007/s00520-009-0630-6.	PR - N ISI - Y AS - Y	This is a retrospective randomized study.	Tao-Yuang, Taiwan.	72 hours.	To identify the incidence & factors related to ED visits by cancer patients with pain complaints.	Medical chats about ED visits by cancer patients during 1 year period.	Pain was the most common reason for ED by cancer patients. The incidence for ED visits for pain as a presenting problem was 27,8%. The 72h EED USR rate was 8,2% for cancer patients who visited the ED with pain complaints.	1:2
Unterman, S., Kessler, C., & Pitzele, H. Z. (2010). Staffing of the ED by non-emergency medicine-trained personnel: the VA experience. *The American Journal Of Emergency Medicine, 28*(5), 622-625. doi: 10.1016/j.ajem.2009.04.025.	PR - Y ISI - Y AS - N	This is a retrospective study.	Chicago, IL, USA.	30 days.	To examine the frequency of USR to the ED in an effort to compare the quality of emergency care given by physicians trained in internal medicine & EM.	The record of all visits to a Veteran's Affairs hospital ED during a 90-day period were examined, & all those visits resulting in a return ED visit within the 30 subsequent days were noted.	The IM-trained physicians had a significantly higher rate of admissions upon revisit within 30 days than did the EM-trained physicians.	3:1
Vanbrabant, P., & Knockaert, D. (2009). Short-term return visits of 'general internal medicine' patients to the emergency department: extent & risk factors. *Acta Clinica Belgica, 64*(5), 423-428.	PR - Y ISI - Y AS - Y	This is a retrospective observational study.	Leuvem, Belgium.	72 hours	To determine the extent of the problem in ED , to identify the relevant clinical predictor variables & to detect diagnostic errors.	ED USR by patients managed by the General Internal Medicine (GIM) service.	The percentage ED USRs by patients discharged from the ED by the GIM service is 1,48%. Patients present with diarrhoea as the initial presenting symptom have highest relative risk of an early USR to ED.	1:2
Verelst, S., Pierloot, S., Desruelles, D., Gillet, J.B. & Bergs, J. (2014) Short-term Unscheduled Return Visits of Adult Patients to the Emergency Department. *Journal of Emergency Medicine,* 47(2), 131-139.	PR - Y ISI - Y AS - N	This is retrospective medical record review.	Leuven, Belgium.	72 hours.	To describe the characteristics of patients who had an USR to the ED & investigate its relation to ED crowding.	Return visits by patients older than 16 years of age over a 1-year period. The top quartile of ED occupancy rates was defined as ED crowding.	Eight hundred thirty-seven patients made an USR visit. Length of stay (LOS) at the ED for the index visit & the LOS for the USR were significantly different, as was the percentage admitted.	2:1
Viner, K. M., Bellino, M., Kirsch, T. D., Kivela, P., & Silva, J. C. (2000). Managed care organization authorization denials: lack of patient knowledge & timely alternative ambulatory care. *Annals of Emergency Medicine, 35*(3), 272-276.	PR - Y ISI - Y AS - Y	A medical screening examination & a follow up structured interview.	Chicago, USA.	No exist.	To asses patient knowledge of managed care organization (MCO) regulations, avaiability of alternative ambulatory care, & patient outcome after MCO insurance authorization denial for na ED visit.	Patients denied authorization for ED visits in a large urban hospital with 36,000 annual ED visits & 40% MCO patients.	Few patients are aware of the need of MCO preauthorization for ED care, & almost half do not receive alternative care within 24 hours. A significant number of patients (11%) returned to the ED with a subsequent admission rate of 4%.	2:2

von Besser, K., & Mills, A. M. (2011). Is discharge to home after emergency department cardioversion safe for the treatment of recent-onset atrial fibrillation? *Annals of Emergency Medicine, 58*(6), 517-520. doi: 10.1016/j.annemergmed.2011.06.014.	PR - Y ISI - Y AS - Y	This is a literature review of 5 studies evidence synthesis.	Philadelphia, PA, USA.	48 hours.	To determine whether any studies have investigated the safety of this management strategy & identified five that addressed this question.	Research articles that specifically examined the outcome of patients discharged to home after electrocardioversion or pharmacologic cardioversion of recent onset atrial fibrillation in the ED.	It would be within the standard of care to discharge home stable patients with atrial fibrillation after cardioversion in the ED, with adequate follow-up. Although this strategy is safe & effective, the USR rate for relapsed atrial fibrillation is 3% to 17%, & patients should be made aware of this possibility.	1:6
Weber, E. J., Mason, S., Freeman, J. V., & Coster, J. (2012). Implications of England's four-hour target for quality of care & resource use in the emergency department. *Annals of Emergency Medicine, 60*(6), 699-706. doi: 10.1016/j.annemergmed.2012.08.009.	PR - Y ISI - Y AS - Y	This is a retrospective study.	Sheffield, United Kingdom.	7 days.	To determine the effect of the "4-hour target" on quality of care & resource use.	The EDs provided administrative data on all visits for May & June, 2003 to 2006. Period before the target until more than a year after full implementation. Admission rate, investigations, deaths in the ED, & return visits within 1 week for all patients & separately for those aged 65 years or older were assessed.	England's 4-hour target did not appear to have a negative effect on quality or safety of ED care & had little effect on test use. Deaths in the ED & USR to ED within 1 week were unchanged. Return visits resulting in hospital admission increased initially & then returned to 2003 levels.	3:3
Wells, R. D., Mason, P., Roarty, J., & Dooley, M. (2009). Comparison of initial antibiotic choice & treatment of cellulitis in the pre- & post-community-acquired methicillin-resistant Staphylococcus aureus eras. *American Journal of Emergency Medicine, 27*(4), 436-439. doi: 10.1016/j.ajem.2008.03.026	PR - Y ISI - Y AS - Y	This is a retrospective study.	San Antonio, TX., USA.	No exist.	To determine antibiotic prescribing patterns & treatment failure rates for cellulitis in the pre- & post-CAMRSA eras.	Age 18 years or more & received a single oral antibiotic for cellulitis.	Prescribing practices for simple cellulitis have changed since the emergence of CAMRSA. This may not be appropriate because β-lactam antibiotics perform as well as 'CAMRSA antibiotics'.	1:3
White, D., Kaplan, L., & Eddy, L. (2011). Characteristics of patients who return to the emergency department within 72 hours in one community hospital. *Advanced Emergency Nursing Journal, 33*(4), 344-353. doi: 10.1097/TME.0b013e31823438d6	PR - Y ISI - Y AS - N	This is an exploratory quantitative descriptive study.	Vancouver, Washington, USA.	72 hours.	To identify characteristics of patients who return to the emergency department (ED) within 72 hr after an initial visit.	Patients with 72 hr ED return visits for the month of January 2009 at the study facility.	The most common diagnoses were for gastrointestinal complaints. Over a third of the patients who returned had chronic health conditions. There were more ED USR in individuals who lacked access to primary	2:2

							care.	
Yeatts, K. B., Lippmann, S. J., Waller, A. E., Hassmiller Lich, K., Travers, D., Weinberger, M., & Donohue, J. F. (2013). Population-based burden of COPD-related visits in the ED: return ED visits, hospital admissions, & comorbidity risks. *CHEST, 144*(3), 784-793. doi: 10.1378/chest.12-1899	PR - Y ISI - Y AS -	This is a retrospective study.	USA –Carolina Statewide ED surveillance data re COPD.	30 days.	To examine the burden of COPD	Indicator – diagnostic group -usage demand.	7% USR return.	1:2