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# BMJ Open

## Medical overuse in the Iranian health care system: a systematic review protocol

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Keywords:	Overuse, Health care system, Medical services, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, GENERAL MEDICINE (see Internal Medicine)

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Peer Review Only

## Medical overuse in the Iranian health care system: a systematic review protocol

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## Abstract

**Introduction:** Lack of resources is one of the main problems of all health care systems. Recent studies have shown that reducing the overuse of medical services plays an important role in reducing health care system costs. Overuse of medical services is a major problem in the health care system, and leads to a decrease in the quality of care and increase of harms and costs in patients. So far, few studies have been conducted in this regard in Iran. The main objective of this systematic review is to perform an inclusive search for studies that report overuse of medical services in Iranian health care system.

**Method and analysis:** An extensive search of the literature will be conducted in six databases including PubMed, Embase, Scopus, web of science, Cochrane and SID using a comprehensive search strategy to identify studies on overuse of medical care by the end of 2017, completed by reference tracking, author tracking, and expert consultation. Any study that reports an overuse in a service based on a specific standard will be included in the study. Two reviewers will screen the articles based on the title, abstract, and full-text and extract data about type of service, clinical area, and overuse rate. Quality appraisal will be assessed using the JBI checklist. Potential

discrepancies will be resolved by consulting a third author.

**Dissemination:** Recommendations will be made to the Iranian MOHME (Ministry of Health and Medical Education) in order to make better evidence-based decisions about medical services in the future.

**Registration details:** PROSPERO  
CRD42017075481

**Keywords:** Overuse, Medical services, Health Care System, Iran

## Article summary

### Article focus

- To outline the plans of a systematic review aimed at identifying overuse of medical services in Iranian health care system.
- To highlight the areas in which the overuse of medical services will take place much more.

### Key messages

- The study will provide the first evidence about medical overuse in Iranian health care system.
- Based on the result of this study, overuse areas will be demonstrated to the Iranian MOHME in order to reduce the rate of medical services overuse.

### Strengths and limitations

- To our knowledge, the study will provide the first systematic review focused on overuse of medical services in Iranian health care system.
- This study could inform decision maker and physicians to distinguish the area of overuse in medical services and plan to reduce it.

- All stages of the study (screening, quality appraisal, data extraction) will be done by two researchers independently.

## Introduction

Medical overuse is often defined as the services that are more harm than benefit, does not seem to increase the quality and quantity of life, imposed excessive costs on the patient and the health care system, has low quality and if the patient has enough information, she/he will not ask for it.<sup>1-3</sup>

Based on the WHO Health Systems Framework,<sup>4</sup> overuse can delay access to four main goals of health systems-improved health, responsiveness, financial risk protection and efficiency-by increasing disadvantages and costs of medical services.<sup>5</sup> In a health system where overuse of medical services is prevalent<sup>6-8</sup> it certainly does not have a high quality health service,<sup>9</sup> because according to this framework a good health service is a service which deliver effective and safe with high quality and without waste of resources . Also, in such a system, the workforce does not function effectively because of the fear of legal follow-up.<sup>4</sup>

Over the past few years, there has been a lot of effort in identifying the overuse of medical services in the world.<sup>10-12</sup> Some of these initiatives include "Choosing Wisely", an initiative of the ABIM foundation, "Less Is More" series by

JAMA Internal Medicine, "Too Much Medicine" and "Overdiagnosis" series by BMJ.<sup>13 14</sup>

As with other countries in Iran, There is little information about the amount and drivers of medical overuse in health care system.<sup>15</sup> As well as, there is no study that thoroughly examines overuse of medical services. So, the identification of overuse in medical services helps patients, practitioners, researchers, administrator and decision-makers of the health care system to manage costs, disadvantages and benefits of services and ultimately balance the use of services.

The objectives are to (1) systematically review and identify literature on the overuse of medical services; (2) identify the areas in which the overuse of medical services will take place much more; and (3) determine the rate of overuse of medical services in the Iranian health care system.

## Methods

### Study method

We will conduct a systematic review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA).<sup>16</sup>

The review protocol was registered in PROSPERO (registration

number: CRD42017075481;  
[http://www.crd.york.ac.uk/PROSPERO/display\\_record.php?ID=CRD42017075481](http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42017075481)).

### Eligibility criteria

All published studies that investigated the overuse of medical services will be included in the study. The included study will not limit based on the type. Our definition of overuse will be based on Saini et al. in recently Right Care Lancet series.<sup>1 3 11</sup> Only studies will be included that have addressed overuse in Iranian health care system. Studies will be limited in English and Farsi languages. Articles will be excluded if the researchers do not have access to the full-text.

### Search strategy and data sources

An extensive search of the literature will be conducted in six databases including PubMed, Embase, Scopus, web of science, Cochrane and SID using a comprehensive search strategy to identify studies on overuse of medical care by the end of 2017, completed by reference tracking, author tracking, and expert consultation. We use a combination of Medical Subject Headings (MeSH) terms and free term to maximize the specificity and feasibility of the search during the initial search.

Proposed search strategy (PubMed);

1. Medical overuse [MeSH Term]

2. Overuse ti,ab.
3. Overmedicalization ti,ab.
4. Overtreatment\* ti,ab.
5. Overdiagnos\* ti,ab.
6. Inappropriate care ti,ab.
7. Unnecessary ti,ab.
8. Overutilization ti,ab.
9. Medicalization\* ti,ab.
10. Overmedication ti,ab.
11. Misdiagnosis ti,ab.
12. "Unwanted care" ti,ab.
13. Polypharmacy ti,ab.
14. Overprescription ti,ab.
15. Value-based care ti,ab.
16. Right care ti,ab.
17. Delivery of Health Care [MeSH Term]
18. Health services [MeSH Term]
19. Medical services
20. Iran
21. 1 Or 2 Or 3 Or 4 Or 5 Or 6 Or 7 Or 8 Or 9 Or 10 Or 11 Or 12 Or 13 Or 14 Or 15 Or 16
22. 17 OR 18 OR 19
23. 20 AND 21 AND 22

### Study selection process and data extraction

After completing the search, the retrieved records will be imported into the EndNote software (version X8), and then the duplicate records will be deleted. Two independent reviewers will screen the articles based on the title, abstract, and full-text and extract data about authors, publication year, type of study, study population, type of service, clinical area, and overuse rate. All disagreements in

each level of study will be noted and resolved by consensus a third researcher.<sup>17</sup>

### Quality appraisal

Poor-quality studies can distort and affect the quality of the results.<sup>18</sup> Due to the possible wide range of included studies, we will use the JBI checklists according to the type of included studies.<sup>19</sup> Two researchers will independently appraise the quality of included studies. All potential discrepancies will be resolved through consultation with the third researcher.

### Data synthesis

We will categorize the results of the included studies based on publication year, clinical area, type of service (diagnostic tests, therapeutic procedures and medications) and range or rate of overuse. Where possible, meta-analysis will be done using quantitative data from individual studies. Also, we will report the services that have the largest number of overuse.

### Discussion

Like the rest of the world, there is little evidence about overuse of medical services in Iranian health care system.<sup>20</sup>

Reducing the overuse of medical services requires extensive studies at the national and regional levels. We are hopeful that this systematic review will provide useful

results in identifying overuse of medical services in Iranian health care system. We are hopeful that the result of this systematic review will make robust and valuable evidence for evidence informed policy making process. However, we note that we are still at the beginning of a long journey, and the need to conduct studies in this field is felt more than ever.

### Abbreviations

ABIM: American Board of Internal Medicine

SID: scientific information database

JBI: Joanna Briggs Institute

### Acknowledgements

This systematic review will form part of Morteza Arab-zozani' PhD dissertation, supervised by Dr Ali Janati, Dr Mohammad Zakaria Pezeshki and Dr Rahim Khodayari-zarnagh. This work was supported by Iranian Center of Excellence in Health Management (ICEHM), School of Management and Medical Informatics, Tabriz University of Medical Sciences, Tabriz, Iran.

### Funding

This study is under review to fund by Tabriz University of Medical Sciences.



## Contributors

MA and MP initiated and conceived the study. AJ and RKH participated in study design. MA drafted the research protocol. MP, AJ and RKH critically revised the content of the written protocol. All authors approved the final version of this protocol.

## Competing interests

No competing interests

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Systematic Review protocol. The effects of early postnatal discharge from hospital for healthy women and term infants

**PRISMA-P 2015 Checklist: recommended items to include in a systematic review protocol**

Section and topic	Item Number	Checklist item	Page number(s)
<b>ADMINISTRATIVE INFORMATION</b>			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	Not an update
Registration	2	If registered, provide the name of the register (such as PROSPERO) and registration number	2
Authors:			
Contact	3a	Provide name, institutional affiliation, email address of all protocol authors; provide physical mailing address of corresponding author	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	7
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	Not an amendment
Support:			
Sources	5a	Indicate sources of financial or other support for the review	6
Sponsor	5b	Provide name for the review funder and/or sponsor	6
Role of sponsor or funder	5c	Describe role of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	6
<b>INTRODUCTION</b>			
Rationale	6	Describe the rationale for the review in the context of what is already known	4
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	4
<b>METHODS</b>			

## Systematic Review protocol. The effects of early postnatal discharge from hospital for healthy women and term infants

Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	5-6
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trials registers or other grey literature sources) with planned dates of coverage	5-6
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated.	5-6
Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	5
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	5
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	5
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding source), any pre-planned data assumptions and simplifications	5
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	5
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level., or both; state how this information will be used in data synthesis	5
Data synthesis	15a	Describe criteria under which study data will be	5

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Systematic Review protocol. The effects of early postnatal discharge from hospital for healthy women and term infants

		quantitatively synthesised	
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I2, Kendall's )	5
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	5
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	Not applicable
Met-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	5
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	5

# BMJ Open

## Medical overuse in the Iranian health care system: a systematic review protocol

Journal:	<i>BMJ Open</i>
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<b>Primary Subject Heading</b>:	Health policy
Secondary Subject Heading:	Evidence based practice, General practice / Family practice, Health services research
Keywords:	Overuse, Health care system, Medical services, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, GENERAL MEDICINE (see Internal Medicine)

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## Medical overuse in the Iranian health care system: a systematic review protocol

Morteza Arab-Zozani<sup>1</sup>, Mohammad Zakaria Pezeshki<sup>2</sup>, Rahim Khodayari-Zarnagh<sup>3</sup>, Ali Janati<sup>4\*</sup>

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## Abstract

**Introduction:** Lack of resources is one of the main problems of all health care systems. Recent studies have shown that reducing the overuse of medical services plays an important role in reducing health care system costs. Overuse of medical services is a major problem in the health care system, and it threatens the quality of the services, can harm patients and create excess costs for patients. So far, few studies have been conducted in this regard in Iran. The main objective of this systematic review is to perform an inclusive search for studies that report overuse of medical services in Iranian health care system.

**Method and analysis:** An extensive search of the literature will be conducted in six databases including PubMed, Embase, Scopus, Web of Science, Cochrane and SID using a comprehensive search strategy to identify studies on overuse of medical care. The search will be done without time limit until the end of 2017, completed by reference tracking, author tracking, and expert consultation. The search will be conducted on February 1, 2018. Any study that reports an overuse in a service based on a specific standard will be included in the study. Two reviewers will screen the articles based on the title, abstract, and full-text and extract data about type of service, clinical area, and overuse rate. Quality appraisal will be assessed using the JBI checklist. Potential discrepancies will be resolved by consulting a third author.

**Ethics and Dissemination:** Recommendations will be made to the Iranian MOHME (Ministry of Health and Medical Education) in order to make better evidence-based decisions about medical services in the future.

**Registration details:** PROSPERO CRD42017075481

**Keywords:** Overuse, Medical services, Health Care System, Iran



## Article summary

### Strengths and limitations

- To our knowledge, the study will provide the first systematic review focused on overuse of medical services in Iranian health care system.
- This study could inform decision maker and physicians to distinguish the area of overuse in medical services and plan to reduce it.
- All stages of the study (screening, quality appraisal, data extraction) will be done by two researchers independently.
- The dispersion of studies in the field of overuse and the difficulty of classifying final studies is one of the possible constraints.

## Introduction

Medical overuse is often defined as the services that are more harm than benefit, does not seem to increase the quality and quantity of life, imposed excessive costs on the patient and the health care system, has low quality and if the patient has enough information, she/he will not ask for it.<sup>1-3</sup>

Based on the WHO Health Systems Framework,<sup>4</sup> overuse can delay access to four main goals of health systems- improved health, responsiveness, financial risk protection and efficiency- by increasing disadvantages and costs of medical services.<sup>5</sup> In a health system where overuse of medical services is prevalent<sup>6-8</sup> it probably does not have a high quality health service,<sup>9</sup> because according to this framework a good health service is a service which delivers effective and safe with high quality and without waste of resources.<sup>10</sup> Also, in such a system, the workforce does not function effectively because of the fear of legal follow-up.<sup>4</sup>

Over the past few years, there has been a lot of effort in identifying the overuse of medical services in the world.<sup>11-13</sup> Some of these initiatives include "Choosing Wisely", an initiative of the ABIM foundation, "Less Is More" series by JAMA Internal Medicine, "Too Much Medicine" and "Overdiagnosis" series by BMJ.<sup>14 15</sup>

As with other countries in Iran, there is little information about the amount and drivers of medical overuse in the health care system.<sup>16</sup> Also, there is no study that thoroughly examines overuse of medical services. So, the identification of overuse in medical services helps patients, practitioners, researchers, administrators and decision-makers of the health care system to manage costs, disadvantages and benefits of services and ultimately balance the use of services.

The objectives are to (1) systematically review and identify literature on the overuse of medical services; (2) identify the areas in which the overuse of medical services will take place; and (3) determine the rate of overuse of medical services in the Iranian health care system.

## Methods

### Study method

We will conduct a systematic review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA).<sup>17 18</sup> We used the PRISMA protocol

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3 because its use would reduce the risk of flawed reporting and increase the transparency and  
4 clarity of the systematic review reports.<sup>18</sup>  
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6 The review protocol was registered in PROSPERO (registration number: CRD42017075481;  
7 [http://www.crd.york.ac.uk/PROSPERO/display\\_record.php?ID=CRD42017075481](http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42017075481)).  
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### 10 **Eligibility criteria**

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12 All published studies that investigated the overuse of medical services will be included in the  
13 study. The included studies will not limited based on study type. Our definition of overuse  
14 will be based on Saini et al. in the recent Right Care Lancet series ('Provision of a service that  
15 is unlikely to increase the quality or quantity of life, that poses more harm than benefit, or  
16 that patients who were fully informed of its potential benefits and harms would not have  
17 wanted').<sup>1 3 12</sup> Only studies will be included that have addressed overuse in Iranian health care  
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19 the researchers do not have access to the full-text.  
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### 26 **Search strategy and data sources**

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28 An extensive search of the literature will be conducted in six databases including PubMed,  
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35 sensitivity of the search. The search will be done on February 1, 2018.  
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42 Proposed search strategy (PubMed);  
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#### Study selection process and data extraction

After completing the search, the retrieved records will be imported into the EndNote software (version X8), and then the duplicate records will be deleted. Two independent reviewers will screen the articles based on the title, abstract, and full-text and extract data about authors, publication year, type of study, study population, type of service, clinical area, and overuse rate or range. All disagreements in each level of study will be noted and resolved by consensus with a third researcher.<sup>19</sup>

#### Quality appraisal

Poor quality studies can distort and affect the quality of the results.<sup>20</sup> Due to the possible wide range of included studies, we will use the JBI checklists according to the type of included studies.<sup>21</sup> The Joanna Briggs Institute (JBI) is an international institution aimed at enhancing evidence-based healthcare by providing access to health related resources. The JBI critical appraisal checklists developed and approved by JBI scientific committee. These tools are designed for various types of studies and available from <http://joannabriggs.org/research/critical-appraisal-tools.html>. Two researchers will independently appraise the quality of included studies. All potential discrepancies will be resolved through consultation with the third researcher. The risk of bias assessment will be performed based on the Cochrane Risk of Bias Tool. For this purpose items such as the

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## 18 **Contributors**

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20 MA and MP initiated and conceived the study. AJ and RKh participated in study design. MA  
21 drafted the research protocol. MP, AJ and RKh critically revised the content of the written  
22 protocol. All authors approved the final version of this protocol.  
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## 26 **Competing interests**

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Systematic Review protocol. The effects of early postnatal discharge from hospital for healthy women and term infants

**PRISMA-P 2015 Checklist: recommended items to include in a systematic review protocol**

Section and topic	Item Number	Checklist item	Page number(s)
<b>ADMINISTRATIVE INFORMATION</b>			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	Not an update
Registration	2	If registered, provide the name of the register (such as PROSPERO) and registration number	2 <u>and</u> 5
Authors:			
Contact	3a	Provide name, institutional affiliation, email address of all protocol authors; provide physical mailing address of corresponding author	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	<del>7</del> 8
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	Not an amendment
Support:			
Sources	5a	Indicate sources of financial or other support for the review	<del>6</del> 8
Sponsor	5b	Provide name for the review funder and/or sponsor	<del>6</del> 8
Role of sponsor or funder	5c	Describe role of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	<del>6</del> 8
<b>INTRODUCTION</b>			
Rationale	6	Describe the rationale for the review in the context of what is already known	4
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	4
<b>METHODS</b>			



## Systematic Review protocol. The effects of early postnatal discharge from hospital for healthy women and term infants

Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	5-6
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trials registers or other grey literature sources) with planned dates of coverage	5-6
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated.	5-6
Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	5
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	5
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	5
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding source), any pre-planned data assumptions and simplifications	5
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	5
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level., or both; state how this information will be used in data synthesis	<del>5</del> 6 and 7
Data synthesis	15a	Describe criteria under which study data will be	<del>5</del> 6

Systematic Review protocol. The effects of early postnatal discharge from hospital for healthy women and term infants

		quantitatively synthesised	
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I <sup>2</sup> , Kendall's )	<del>56</del>
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	<del>56</del>
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	Not applicable
Met-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	<del>56</del>
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	<del>56</del>

# BMJ Open

## Medical overuse in the Iranian health care system: a systematic review protocol

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2017-020355.R2
Article Type:	Protocol
Date Submitted by the Author:	10-Mar-2018
Complete List of Authors:	Arab-Zozani, Morteza; Tabriz University of Medical Sciences, School of Management and Medical Informatics Pezeshki, Mohammad Zakaria; Tabriz University of Medical Sciences Faculty of Medicine, Department of Community Medicine Khodayari-Zarnagh, Rahim; Tabriz University of Medical Sciences, School of Management and Medical Informatics Janati, Ali; Tabriz University of Medical Sciences, School of Management and Medical Informatics
<b>Primary Subject Heading</b>:	Health policy
Secondary Subject Heading:	Evidence based practice, General practice / Family practice, Health services research
Keywords:	Overuse, Health care system, Medical services, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, GENERAL MEDICINE (see Internal Medicine)

SCHOLARONE™  
Manuscripts

## Medical overuse in the Iranian health care system: a systematic review protocol

Morteza Arab-Zozani<sup>1</sup>, Mohammad Zakaria Pezeshki<sup>2</sup>, Rahim Khodayari-Zarnagh<sup>3</sup>, Ali Janati<sup>4\*</sup>

### Authors' Affiliations

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## Abstract

**Introduction:** Lack of resources is one of the main problems of all health care systems. Recent studies have shown that reducing the overuse of medical services plays an important role in reducing health care system costs. Overuse of medical services is a major problem in the health care system, and it threatens the quality of the services, can harm patients and create excess costs for patients. So far, few studies have been conducted in this regard in Iran. The main objective of this systematic review is to perform an inclusive search for studies that report overuse of medical services in Iranian health care system.

**Method and analysis:** An extensive search of the literature will be conducted in six databases including PubMed, Embase, Scopus, Web of Science, Cochrane and SID using a comprehensive search strategy to identify studies on overuse of medical care. The search will be done without time limit until the end of 2017, completed by reference tracking, author tracking, and expert consultation. The search will be conducted on February 1, 2018. Any study that reports an overuse in a service based on a specific standard will be included in the study. Two reviewers will screen the articles based on the title, abstract, and full-text and extract data about type of service, clinical area, and overuse rate. Quality appraisal will be assessed using the JBI checklist. Potential discrepancies will be resolved by consulting a third author.

**Ethics and Dissemination:** Recommendations will be made to the Iranian MOHME (Ministry of Health and Medical Education) in order to make better evidence-based decisions about medical services in the future.

**Registration details:** PROSPERO CRD42017075481

**Keywords:** Overuse, Medical services, Health Care System, Iran

## Article summary

### Strengths and limitations

- To our knowledge, the study will provide the first systematic review focused on overuse of medical services in Iranian health care system.
- This study could inform decision maker and physicians to distinguish the area of overuse in medical services and plan to reduce it.
- All stages of the study (screening, quality appraisal, data extraction) will be done by two researchers independently.
- The dispersion of studies in the field of overuse and the difficulty of classifying final studies is one of the possible constraints.

## Introduction

Medical overuse is often defined as the services that are more harm than benefit, does not seem to increase the quality and quantity of life, imposed excessive costs on the patient and the health care system, has low quality and if the patient has enough information, she/he will not ask for it.<sup>1-3</sup>

Based on the WHO Health Systems Framework,<sup>4</sup> overuse can delay access to four main goals of health systems- improved health, responsiveness, financial risk protection and efficiency- by increasing disadvantages and costs of medical services.<sup>5</sup> In a health system where overuse of medical services is prevalent<sup>6-8</sup> it probably does not have a high quality health service,<sup>9</sup> because according to this framework a good health service is a service which delivers effective and safe with high quality and without waste of resources.<sup>10</sup> Also, in such a system, the workforce does not function effectively because of the fear of legal follow-up.<sup>4</sup>

Over the past few years, there has been a lot of effort in identifying the overuse of medical services in the world.<sup>11-13</sup> Some of these initiatives include "Choosing Wisely", an initiative of the ABIM foundation, "Less Is More" series by JAMA Internal Medicine, "Too Much Medicine" and "Overdiagnosis" series by BMJ.<sup>14 15</sup>

As with other countries in Iran, there is little information about the amount and drivers of medical overuse in the health care system.<sup>16</sup> Also, there is no study that thoroughly examines overuse of medical services. So, the identification of overuse in medical services helps patients, practitioners, researchers, administrators and decision-makers of the health care system to manage costs, disadvantages and benefits of services and ultimately balance the use of services.

The objectives are to (1) systematically review and identify literature on the overuse of medical services; (2) identify the areas in which the overuse of medical services will take place; and (3) determine the rate of overuse of medical services in the Iranian health care system.

## Methods

### Study method

We will conduct a systematic review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA).<sup>17</sup> We used the PRISMA because its use

would reduce the risk of flawed reporting and increase the transparency and clarity of the systematic review reports.<sup>17</sup>

The review protocol was registered in PROSPERO (registration number: CRD42017075481; [http://www.crd.york.ac.uk/PROSPERO/display\\_record.php?ID=CRD42017075481](http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42017075481)).

### **Eligibility criteria**

All published studies that investigated the overuse of medical services will be included in the study. The included studies will not be limited based on study type. Our definition of overuse will be based on Saini et al. in the recent Right Care Lancet series ('Provision of a service that is unlikely to increase the quality or quantity of life, that poses more harm than benefit, or that patients who were fully informed of its potential benefits and harms would not have wanted').<sup>13 12</sup> Only studies will be included that have addressed overuse in Iranian health care system. Studies will be limited in English and Farsi languages. Articles will be excluded if the researchers do not have access to the full-text.

### **Search strategy and data sources**

An extensive search of the literature will be conducted in six databases including PubMed, Embase, Scopus, Web of Science, Cochrane and Scientific Information Database (SID) using a comprehensive search strategy to identify studies on overuse of medical services without time limit until the end of 2017, completed by reference tracking, author tracking, and expert consultation. SID is a database that categorized Iranian research- scientific journals in scientific groups and initiated its mission in August 2004 (<http://www.sid.ir/En/Journal/>). We use a combination of Medical Subject Headings (MeSH) terms and free term to maximize the sensitivity of the search. The search will be done on February 1, 2018.

Proposed search strategy (PubMed);

1. Medical overuse [MeSH Term]
2. Overuse ti,ab.
3. Overmedicalization ti,ab.
4. Overtreatment\* ti,ab.
5. Overdiagnos\* ti,ab.
6. Inappropriate care ti,ab.
7. Unnecessary ti,ab.
8. Overutilization ti,ab.
9. Medicalization\* ti,ab.



10. Overmedication ti,ab.
11. Misdiagnosis ti,ab.
12. "Unwanted care" ti,ab.
13. Polypharmacy ti,ab.
14. "Inappropriate medication" ti,ab.
15. Overprescription ti,ab.
16. Value-based care ti,ab.
17. Right care ti,ab.
18. Delivery of Health Care [MeSH Term]
19. Health services [MeSH Term]
20. Medical services
21. Iran
22. 1 Or 2 Or 3 Or 4 Or 5 Or 6 Or 7 Or 8 Or 9 Or 10 Or 11 Or 12 Or 13 Or 14 Or 15 Or 16 OR 17
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#### Study selection process and data extraction

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Poor quality studies can distort and affect the quality of the results.<sup>19</sup> Due to the possible wide range of included studies, we will use the JBI checklists according to the type of included studies.<sup>20</sup> The Joanna Briggs Institute (JBI) is an international institution aimed at enhancing evidence-based healthcare by providing access to health related resources. The JBI critical appraisal checklists developed and approved by JBI scientific committee. These tools are designed for various types of studies and available from <http://joannabriggs.org/research/critical-appraisal-tools.html>. Two researchers will independently appraise the quality of included studies. All potential discrepancies will be resolved through consultation with the third researcher. The risk of bias assessment will be performed based on the Cochrane Risk of Bias Tool. For this purpose items such as the

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Authors:			
Contact	3a	Provide name, institutional affiliation, email address of all protocol authors; provide physical mailing address of corresponding author	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	<del>7</del> 8
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	Not an amendment
Support:			
Sources	5a	Indicate sources of financial or other support for the review	<del>6</del> 8
Sponsor	5b	Provide name for the review funder and/or sponsor	<del>6</del> 8
Role of sponsor or funder	5c	Describe role of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	<del>6</del> 8
<b>INTRODUCTION</b>			
Rationale	6	Describe the rationale for the review in the context of what is already known	4
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	4
<b>METHODS</b>			

## Systematic Review protocol. The effects of early postnatal discharge from hospital for healthy women and term infants

Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	5-6
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trials registers or other grey literature sources) with planned dates of coverage	5-6
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated.	5-6
Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	5
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	5
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	5
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding source), any pre-planned data assumptions and simplifications	5
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	5
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level., or both; state how this information will be used in data synthesis	<del>5</del> 6 and 7
Data synthesis	15a	Describe criteria under which study data will be	<del>5</del> 6

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		quantitatively synthesised	
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I <sup>2</sup> , Kendall's )	56
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	56
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	Not applicable
Met-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	56
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	56