Methods:
A comparative analysis of the costs of the IVF ICSI + PGT alternative versus the RRT cost was carried out. The RRT cost was obtained from the specialised literature. The cost of the preventative strategy was calculated by adding the costs of an assisted reproduction procedure in a public hospital and the market price of the PGT in Spain. The average cost of a standard patient during the natural course of the disease has been calculated with patients' records from the registry of Granada (Spain).
Results:
The average costs of transplantation (47,136 and 6,477 euros/year, first year and successive years respectively), haemodialysis (44,778 euros/year), and peritoneal dialysis (34,554 euros/year) are notably higher than costs of preventing the transmission of the disease (5,520-6,020 euros). An incremental cost-effectiveness ratio in favour of the preventative strategy was obtained in a scenario with three single embryo transfers.
Conclusions:
From the perspective of the cost-effectiveness analysis, the preventative strategy proved to be a superior alternative to the renal replacement therapies currently applied. Thus, it would be advisable to promote the strategy of preventing transmission of the disease through assisted human reproduction and genetic testing. Despite the positive contribution of this strategy to the economic sustainability of the public health system, a decided health policy action in its favour is still needed.
Key messages:
- The preventative strategy for ADPKD demonstrated advantages in terms of cost-effectiveness plus benefits as regards quality of life.
- Public health action in favour of the preventative strategy for ADPKD lacks still of a decided support among stakeholders.

Voluntary insurance is associated with higher expenditure on health administration in OECD countries

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Background:
Developed countries differ in terms of expenditure for health administration, ranging from 0.6% (Norway) to 8.3% (the United States) of current health spending. The reasons for these differences are not well recognised; however, it is hypothesised that macro-level financing arrangements play a role. The aim of this study is to assess whether the financing structure of health systems is associated with the level of spending on health administration in OECD countries.
Methods:
I used macro-level data for 33 OECD countries for the period 2003-2016 (356 observations). Dynamic panel regression was applied to quantify the relationships between three measures of health administration spending [expenditure on health administration: i) as a share of current health expenditure; ii) as a share of GDP; iii) in real US$] and shares of taxes; compulsory health insurance; and out-of-pocket payments in countries' health financing structure.
Results:
The results show that the expenditure on health administration in OECD countries is associated mainly with past spending on this purpose. Also, higher shares of taxes and compulsory health insurance in country's financing mix is associated with significantly lower expenditure for health administration compared to voluntary insurance schemes. On the other hand, the effect of out-of-pocket spending is not statistically different from that of voluntary health insurance in terms of association with the level of health administration expenditure. Greater overall expenditure for health care is not related to administration spending.
Conclusions:
OECD countries differ notably in the level of health administration expenditure and this difference can be, at least partly, attributed to arrangements applied in health systems' funds collection. Relying on private financing sources is associated with higher spending on administration resulting in less resources devoted to core health services provision.
Key messages:
- Higher share of voluntary insurance schemes in health spending coexists with greater spending on health administration in OECD countries.
- OECD countries differ notably in the level of health administration spending and this level is mainly associated with past spending on that purpose.

3.G. Improving health services: Europe and beyond

Using participatory action research to improve care coordination in Latin America healthcare networks

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Background:
The improvement of care coordination across levels is a concern in Latin American health systems. It leads to efficient and higher quality services. Effective ways to improve it are bottom-up and training interventions using participatory action research(PAR). Active stakeholders' involvement ensures practice change. We analyze the intervention design to improve care coordination across levels in public health networks of Argentina, Brazil, Chile, Colombia, Mexico and Uruguay using PAR approach.
Methods:
A qualitative study led by a local steering committee(LSC) of healthcare professionals, managers and researchers supported by training. A platform of professionals(PP) from different care levels, with leadership ability and keen to voluntary participate carried on the project tasks: 1.Dissemination of mixed results of a care coordination study performed in the network 2.Problems identification 3.Interventions identification and prioritization based on numerical prioritization, group meeting, individual reflection 4.Interventions and action plan design 5. Evaluation of intervention design based on monitoring documents.
Results:
LST and PP (15-25 professionals/each country, the majority from primary care) collaborated throughout the study. Professionals targeted by interventions were involved in results dissemination and problems selection. Results were discussed in group meetings (up to 11-20). Discussions allowed a continuum process of problem prioritization highlighting

causes and consequences. Prioritized problems were: lack of communication, absence of coordination mechanisms, mistrust among doctors. Mostly, the interventions selected were joint meetings to improve communication. The monitoring included indicators and individual interviews.

Conclusions:

PAR approach allowed the identification of the most suitable solutions for coordination issues. Interventions reflect a need for regular communication among professionals to improve patient management.

Key messages:

- First study applying a PAR in the design of intervention of coordination of care in six middle income Latin-American countries.
- Health professionals were involved throughout the intervention design process to ensure the more effective results.

Cross-border care in Europe: a critical analysis of collaborations (2007-2017)

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Background:

There are multiple reasons that may drive countries to collaborate with each other on specific aspects of healthcare provision. In the face of increasing differences in the capacity of public health care sectors across Europe, this study aims to give a first-time comprehensive overview of publicly funded types of collaborations that have developed in the past decade both on the supply and the demand side.

Methods:

The study provides a systematic analysis of collaborations between healthcare systems in European countries in the period 2007 to 2017. Out of a total of 1167 analyzed projects, 423 EU-funded projects were selected based on a systematic search of online databases, grey literature and expert consultations. Results were validated by a stakeholder and expert forum in a systematic peer review process. Information about projects was synthesized regarding geographic location of the collaboration, time frame, and potential benefits for patients, payers and purchasers, adapting a conceptual framework by I. Glinos on cross-border care.

Results:

Findings confirm the importance of so-called fluid borders, as countries with shared historical ties and in geographical proximity were most likely to launch cross-border healthcare collaborations in the period analyzed. Little evidence for patient-driven collaborations was found.

Conclusions:

In view of recent policy developments at EU level, including the 2011 Patient Rights Directive, we conclude that further steps at EU policy level encouraging cross-border healthcare seem unjustified given the results of our study, except for border areas where an objective, local need exists. In these areas, there is potential that local inequalities be reduced. Future policies at European level should also carefully weigh concerns about patients' rights against tendencies for increased liberalization of healthcare markets.

Key messages:

- Historical and geographical ties are most important factors for driving EU cross-border care.
- Cross-border care policies should focus on local patients' needs and reduction of inequalities thereof.

Healthcare organization mergers: a systematic review of the literature on clinical outcomes.

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Background:

A wave of healthcare organization mergers have been pursued for more than two decades in different countries regardless the type of health systems, although little attention is paid to their impact and assessment. The objective of this work is to synthesize evidence on the effect on clinical outcomes of patients after a merger of a healthcare organization, through a systematic review of the literature

Methods:

This systematic review was conducted according to the Population-Intervention-Comparison-Outcome model, using specific keywords and Boolean operators to build a search string, and by querying 3 electronic databases. Articles that reported quantitative evaluation of the impact of mergers on clinical outcomes were included. Titles, abstracts, and data extraction performed by 2 independent investigators

Results:

From a total of 28748, 5 studies met our inclusion criteria and 37 indicators were identified: 54.1% didn't show any variation, 32.4% worsened and only 13.5% improved significantly after the merger. In particular, orthopedic care didn't show any statistically significant variation in 44.5% indicators, while 33.3% showed a worsening and 22.2% an improvement in clinical outcomes. Obstetrics and neonatal indicators care didn't change in 50.0% and 33.3% of them showed a statistically significant worsening. Cardiovascular disease indicators showed that acute myocardial infarction mortality didn't variate in 75.0% of the indicators but 25.0% worsened. Indicators of heart failure, percutaneous coronary intervention and coronary artery bypass graft mortality didn't improve significantly. Eventually, 60.0% of stroke mortality indicators showed a significant worsening.

Conclusions:

The impact of mergers showed contrasting effect on health outcomes that should be considered when these activities are intended to be pursued. These processes should be followed by a periodic assessment and actions that try to continuously improve and reach the targeted results

Key messages:

- Mergers may imply important consequences in terms of clinical outcomes that should not be underestimated.
- A continuous evaluation approach to health risks linked to this type of intervention is suggested.

Factors affecting physician satisfaction in European hospitals: evidence based on systematic review

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Background:

Physician satisfaction is a multidimensional concept associated with many factors. Notwithstanding the wide range of research concerning factors affecting physician satisfaction in different European countries, there is a lack of studies analyzing and summarizing the current evidence. The aim of our research was to synthetize the literature studying the factors associated with physician satisfaction.

Methods:

The following databases were searched: MEDLINE, Embase, PsycINFO, CINAHL and the Cochrane Library from 2000 to 2017. The search strategy included MESH/Emtree terms and free text words related to the subject and was performed with no language restrictions. Our eligibility criteria included: (1) target population: physicians working in European hospitals,

(2) quantitative research aimed at assessing physician satisfaction and associated factors, (3) validated tools used to measure physician satisfaction. We performed a narrative synthesis.

Results:

After screening 8,585 records, 367 full text articles were independently checked by two reviewers against inclusion and exclusion criteria. Finally 24 studies were included for qualitative analysis. The included studies surveyed 20 thousand physicians from 12 European countries. The tools and scales used in the analysed research to measure physician satisfaction varied to a large extent. We extracted all pre-specified factors, reported as statistically significant and non-significant. We divided the analysed factors affecting physician satisfaction into three groups: personal, intrinsic and contextual factors.

Conclusions:

Our study is the first systematic review summarizing factors associated with satisfaction of physicians working in European hospitals. We identified more research appraising the effect of contextual factors (like work-place characteristics/work environment), highlighting a positive association between said factors and physician satisfaction, compared with personal and intrinsic factors.

Key messages:

- The majority of factors affecting physician satisfaction are modifiable and positively associated with characteristics of contextual factors such as work-place setting/work environment.
- Numerous studies confirmed statistically significant associations between physician satisfaction and quality of management/leadership, professional development and colleague support.

Improving quality through competition? The impact of public reporting on competition among hospitals

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Background:

Public reporting on the quality of health care is intended to guide patients to find the provider with the highest quality. The increased transparency between the hospitals should result in a fair competition for the best quality. However, the impact of competition on quality of care remains controversial despite numerous international studies.

Methods:

The public release of performance data through public reporting portals in 2008 serves as an intervention for a Difference-in-Differences design to estimate the causal effect of competition on quality of care. Panel data from 953 hospitals from 2006 to 2012 are used. Quality is measured by the 30-day mortality rate for stroke treatment, adjusted for patient characteristics, co-morbidities and used procedures. Due to the high complexity and interdisciplinary nature of the treatment of stroke patients, their mortality is considered as a good proxy for the overall quality of the hospital. Competition is measured using the Herfindahl-Hirschman index based on market shares of stroke patients. To ensure a causal interpretation, we choose an Instrumental Variable approach and use predicted market shares (based on exogenous variables only).

Results:

A homogeneous effect over all hospitals of competition on quality cannot be found. However, private and specialized hospitals significantly improve their quality in response to the introduction of public reporting, while the quality of non-specialized hospitals deteriorates. The results also show that the quality improvements are not sustainable, they are decreasing if a longer time horizon (2006-2012) is considered.

Conclusions:

The results suggest that competition might not have positive quality effects for all hospitals. The intended fair quality competition among hospitals through public reporting is questionable, since the quality of non-specialized hospitals that are crucial for the local acute care systematically declines due to the increased competition.

Key messages:

- Competition improves quality in specialized hospitals.
- Competition and local acute care provision needs to be balanced carefully.

Healthcare system performance on care continuity for severe mentally ill patients in five countries

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Healthcare systems struggle to provide the appropriate organisational mechanisms for providing continuity of care in chronic care delivery. European healthcare systems are based either on single-payer social insurance coverage (NHS) or on regulated-market systems (RMS) and developed specific features for care provision, regulation, and financing. Features affect the effectiveness of cross-sectional, longitudinal, and relational care continuity.

The healthcare systems of Belgium, Germany, Poland (RMS), Veneto, and England (NHS) were reviewed using OECD and WHO reports. Hypotheses were formulated regarding systems' performance on care continuity. Ten indicators were assessed about 6,418 patients recruited in psychiatric hospitals and followed up one year after discharge. Multivariate regressions were used to control indicators for patients' characteristics and recruitment hospitals.

NHS (Veneto and England) were hypothesised to be more favourable to the delivery of care continuity than Belgium and Germany, Poland having a mixed healthcare system. Veneto had the overall best performance and Belgium the worst. In NHS, the average gap between hospital discharge and outpatient follow-up was twice shorter than in Belgium and Poland, but was similar in Germany. Patients had less access to different professions and services in RMS and had contacts with a higher number of psychiatrists in Germany. Results were mixed regarding relational continuity, satisfaction and helping alliance being higher in RMS than in England.

Globally, hypotheses were confirmed, although Germany had a higher and Poland a lower performance than expected. Relational care continuity is less affected by system features. The regulation of providers' competition on a geographical area may have major impact on cross-sectional and longitudinal care continuity. Comparative assessment of system performance can be achieved with straightforward indicators.

Key messages:

- NHS are more performant on cross-sectional and longitudinal continuity of care than regulated-market systems.
- Comparative assessment of healthcare system performance on care continuity can be achieved with straightforward indicators that could be included in routine outcome measurement systems.

The possibility of reintroduction of Malaria in Portugal: are Surveillance Systems doing enough?

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Background:

Malaria was eliminated in Portugal in 1973. In 2014, an electronic Surveillance System (SS) was implemented but the disease is still believed to be underreported. With the increase of locally acquired P. vivax cases in Europe, population mobility and climate change, the possibility of resurgence of autochthonous cases is real. This study aims to estimate the

completeness of malaria notification using the capture-recapture (CRC) method.
Methods:
Cross-sectional study of malaria cases identified either in the notification database of the SS or the Diagnosis-Related Group (DRG) database containing all public hospital admissions in 2016. The variables sex, date of birth and residence were used for matching the cases. Maximum likelihood population estimate, completeness of notification relative to hospital cases and completeness of notification relative to estimated total number of cases were calculated.
Results:
423 cases were identified in the DRG database, 194 cases in the SS, with 139 cases being reported by both databases. The maximum likelihood population estimate were 578 cases (95% CI 532 - 627). Completeness of notification by the SS relative to DRG was 32.9% (95% CI 28,4 - 37,6). Completeness of the SS relative to estimated total number of cases was 32.9% (95% CI 29,1 - 36,9). Malaria cases were mainly caused by P. Falciparum, more frequently men, with a mean age of 43 years.
Conclusions:
The study confirmed that malaria is underreported. However, the introduction of an electronic SS seems to have decreased sub-notification, since a previous study on paper-based notifications found a completeness notification of 21.2%. The likelihood population estimate indicates that the total amount of cases in 2016 was underestimated. This might be explained by the diagnosis of malaria in other clinical settings. The results of this study highlight the need for effective notification strategies for malaria, especially when there is a risk of reintroduction of disease.
Key messages:
- There is a risk of resurgence of locally acquired cases of Malaria in Portugal.
- Stronger surveillance systems are needed for a timely, effective response in preventing the spread of disease.

Working in the change of Finnish health and social care system- Perceptions of the employees

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Background:
Finnish health and social care system is about to face a historical reform. Integration of health and social services is one of its main tasks, which requires new ways of acting, work arrangements and competent and committed workforce. Major organisational change is known to influence the employees in many ways; however, we examined how the current changes are perceived among the employees and what should be considered in the implementation.
Methods:
Study was conducted in two Finnish social- and health care organizations where the service integration and new operating models have already been implemented. Semi-structured single (n = 6) and group interviews (n = 12) were conducted with nurses, physiotherapists, physicians and social workers (n = 47) from 16 work units. Data was analysed with inductive content analysis by using Atlas.ti program.
Results:
Five main categories emerged:1) Working under the change with continuous new instructions caused stress especially when implemented on top of heavy workload. 2) Possibilities to influence changes were seen low due to declaratory nature of the received information and instructions. 3) Managers were expected to be easily reachable in daily work, know the work of different professionals and be aware of situations in the field. 4) Competence requirements were seen broader than before and special knowledge and skills less appreciated. 5) Increased cooperation and uniform practices were challenged because new coworkers and work of other professions were unfamiliar.
Conclusions:
Continuous and dense changes can cause stress if information is delivered top-down without proper discussion. Sufficient resources to implement the changes, facilitating multi-professional teamwork as well as acknowledgement of individual knowledge, skills and wellbeing should be considered. Promoting employees' commitment and motivation to change is important in order to provide more effective and customer-oriented health and social care services.
Key messages:
- Developing care integration is challenging during a large organisational reform as managers and networks are changing and workloads are already high.
- Employees need to be motivated and become more active participants of change instead of passive recipient of information and instructions.

3.H. Occupational Health

Occupational physical heaviness and sitting as predictors of mortality: a 26-year follow-up

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Background:
Evidence on the associations of occupational physical demands and sitting with mortality is contradictory. The purpose of this study was to examine the relationships of late-career physical heaviness of work and sitting at work with mortality.
Methods:
The participants were 5210 men and 4725 women from the Helsinki Birth Cohort Study. The participants were followed-up for 237322 person-years from 1990 to 2015. The likelihood of physical heaviness of work (carrying, lifting, digging) and prolonged sitting at work (>5 hours/day) were assessed using a job exposure matrix at the age of 45 to 57 years in 1990. Outcomes included all-cause mortality, and deaths due to cardiovascular diseases, cancer and external causes. Cox regression and competing risk regression models were adjusted for age and years of education.
Results:
During the follow-up, 1536 men and 759 women died. Among men, physical heaviness of work was positively and sitting at work was negatively associated with all-cause, cardiovascular and external causes mortality but they were not associated with cancer mortality. The hazard ratios (HR) of men in the highest quartile of physical heaviness of work compared to the men in the lowest quartile were 1.54 (1.31 to 1.80) for all-cause mortality, 1.70 (1.30 to 2.23) for cardiovascular mortality, and 3.18 (1.75 to 5.78) for external causes mortality. Compared to the lowest quartile, the risks for the highest quartile of sitting at work were 0.71 (0.61 to 0.82) for all-cause mortality, 0.59 (0.45 to 0.77) for cardiovascular mortality, and 0.38 (0.22 to 0.66) for external causes mortality. In women, neither physical