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Experiences and Perceptions of the Role and Scope of Practice of Community Mental Health Workers in Ghana

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Abstract

Background: Due to the absence of adequate numbers of psychiatrists, the bulk of mental health care at the community level in Ghana are provided by community mental health workers (CMHWs). Given that 2 new categories of mental health cadres, Clinical Psychiatric Officers (CPO) and Community Mental Health Officers (CMHOs) were introduced three years ago to compliment the work of Community Psychiatric Nurses (CPN) and psychiatrists, it seems important to assess how well these cadres have fitted into the mental health delivery system in comparison to their CPN counterparts.

Aim: To examine the role and scope of practice of CMHWs in Ghana from their own perspectives and to make recommendations to improve the care they provide.

Methods: We conducted a cross sectional survey of 164 CMHWs from all the ten administrative regions of Ghana, comprising 71 (43.3%) CPNs, 19 (11.6%) CPOs and 74 (45.1%) CMHOs.

Results: Overall, only 39 (23.8%), 64 (39%), 46 (28%) and 13 (7.9%) of all the CMHWs worked closely with psychiatrists, social workers, psychologists and occupational therapists respectively. Significantly fewer CMHOs worked closely with psychiatrists, psychologists and social workers compared to CPOs and CPNs. There was no significant difference in the proportion of the different CMHW types who expressed confidence in their ability to diagnose any of the common named mental health conditions except personality disorders. However, a significantly lower proportion of CMHOs than CPOs and CPNs expressed confidence in their ability to treat all the disorders. The CMHWs reported Schizophrenia as the most frequently treated mental health condition and there was no statistically significant difference in the reported frequency with which the three groups of CMHWs treated any of the mental health conditions. In addition to duties prescribed in their job descriptions, all the CMHWs identified several jobs that they routinely perform including dressing wounds and providing antenatal, family planning and immunisation services and also treating physical ailments.

Discussion: All the three categories of CMHWs appear to perform similar functions even though their job descriptions differ with CMHOs for example not expected to treat patients. A large proportion of all the three categories of CMHWs perceived that they perform duties outside of their job description. This is expected in particular, as most of them do not work in conjunction with other allied mental health professionals but are expected to meet the needs of patients.

Implications for Health Care Provision and Use: Many CMHWs perform functions that fall outside their official roles and therefore may not have enough time to dedicate to the roles for which they are trained, which can compromise the quality of care.

Implications for Health Policies: Mental health policy directors need to thoroughly review the training curriculum and also evaluate the job descriptions of all CMHWs in Ghana to ensure that they are

consistent with the demands and healthcare needs of patients they care for in their communities.

Implications for Further Research: Further research is needed on the impact of the unofficial expanded roles for CMHWs on quality of care.

Source of Funding: None declared.

Recruitment and Retention of Community Mental Health Workers in Ghana-What Factors are Important?

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Abstract

Background: Whilst there have been several studies exploring retention in health workers, little is known about health workers engaged in the provision of mental health services in Ghana and the factors that affect their recruitment and retention.

Aims: To examine the views of Community Mental Health Workers (CMHWs), psychiatrists and health policy directors about the factors which influence the recruitment and retention of Community Mental Health Workers (CMHWs) in Ghana and to make recommendations to improve the mental healthcare in Ghana based on these factors.

Methods: We administered three separate, self-administered, semi-structured questionnaires to 11 psychiatrists, 29 health policy directors and 164 CMHWs across Ghana, including 71 (43.3%) Community Psychiatric Nurses (CPNs), 19 (11.6%) Clinical Psychiatric Officers (CPOs), and 74 (45.1%) Community Mental Health Officers (CMHOs).

Results: Overall, 34 (20.7%) of all CMHWs chose to work in mental health because of the job prospects in mental healthcare, with significantly more CMHOs choosing to work in mental health because of the job prospects (32.4%) compared to both CPOs (5.3%) and CPNs (12.7%), $p < 0.05$. Overall, 12 (16.2%) CMHOs, 1 (5.3%) CPO, 20 (28.2%) of CPNs reported they had considered leaving the mental health profession because of the stigma, with 4 (36.4%) psychiatrists and 12 (41.4%) health policy coordinators also reporting that they knew some CMHWs who had considered leaving the mental health profession because of stigma. Similarly, 16 (21.6%) CMHOs, 4 (22.1%) CPOs and 38 (53.5%) CPNs said they had considered leaving the mental health profession because of concerns about risk. Furthermore, 6 (54.5%) psychiatrists and 3 (10.3%) health policy directors said they knew some CMHWs who had considered leaving the mental health profession because of concerns about risk. Overall, 61 (37.2%) of the CMHWs reported that they have considered leaving the mental health profession for other reasons either than stigma and risk including: the lack of support, respect and recognition from healthcare managers, lack of opportunities for professional development, poor conditions of service including low salaries, lack of office and personal accommodation, lack of risk allowance and transportation as well as poor inter-professional relationships.

Discussion: Several factors affect the recruitment and retention of

CMHWs in Ghana, including the prospects of easy employment, stigma, risk, lack of opportunities for career progression and low salaries.

Implications for Health Care Provision and Use: Mental health training institutions need to screen prospective students to ascertain their motivation for wanting to train as CMHWs before they are enrolled on the programmes so that only health cadres who are dedicated to the mental health profession are recruited.

Implications for Health Policies: The government of Ghana and the Ministry of Health need to address the factors that have the potential to decrease attrition rates within these mental health cadres by providing enhanced security and logistics as well as enhanced salaries and clear career paths.

Implications for Further Research: There is a need for research to determine the attrition rates within CMHWs in Ghana and to examine the actual reasons why some cadres have left the profession.

Source of Funding: None declared.

Antipsychotic Prescribing: Do Conflict of Interest Policies Make a Difference?

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Abstract

Background: Physicians' interactions with the pharmaceutical industry include receipt of gifts, contact with sales representatives, and participation in industry-sponsored continuing medical education and research. To mitigate conflicts of interest that may arise from such relationships the American Association of Medical Colleges in 2008 recommended that US medical schools adopt several policies governing physician-industry interactions. These policies range from public disclosure of payments from industry, bans on gifts and other forms of industry promotion, and restrictions on funding of continuing medical education. The effect of these policies on physician prescribing behavior is unclear. Understanding the impact of conflict of interest policies is particularly relevant for the antipsychotic category in which numerous choices exist without a clear first line treatment but with varying by prices and side effect profiles.

Aims: Determining whether nine American Association of Medical Colleges (AAMC)-recommended policies influence psychiatrists' antipsychotic prescribing and compare prescribing between academic and non-academic psychiatrists with greater exposure to pharmaceutical promotion.

Methods: We measured the number of prescriptions for 10 heavily-promoted, 4 newly-introduced and 5 reformulated antipsychotics between 2008 and 2011 among 2,464 psychiatrists affiliated with 101 US academic medical centers and 11,201 psychiatrists not affiliated with an academic institution. We measured the degree of compliance with 9 AAMC recommendations for all 101 academic medical centers. Difference-in-difference analyses compared changes in antipsychotic prescribing between psychiatrists affiliated with centers that were compliant with 7/9 AAMC policies and those whose institutions did not, and to non-academic psychiatrists. We used non-linear mixed models to adjust for physician characteristics and prescribing volume.

Results: Ten centers were AAMC-compliant in 2008, 30 attained compliance by 2011, and 61 were never compliant. The share of

prescriptions for heavily promoted antipsychotics was stable and did not differ between academic and non-academic psychiatrists (63.0-65.8% in 2008 and 62.7-64.4% in 2011). Psychiatrists in centers attaining compliance were slightly less likely to prescribe these antipsychotics after the policies were instituted compared to those in never compliant centers [Relative Odds Ratio (ROR), 0.95, 95% CI 0.94-0.97, <0.0001]. The share of prescriptions for new/reformulated antipsychotics grew from 5.3% in 2008 to 11.1% in 2011. Psychiatrists in AAMC-compliant centers actually increased prescribing of new/reformulated antipsychotics relative to those in never compliant centers (ROR 1.39, 95% CI 1.35-1.44, p<0.0001) for a relative increase of 1.1% in probability, slightly less than the 2.0% increase among non-academic psychiatrists.

Discussion and Limitations: Psychiatrists exposed to AAMC recommended policies prescribed heavily promoted antipsychotics at rates roughly similar to academic psychiatrists exposed to less strict policies and to non-academic psychiatrists. The limited impact of conflict of interest policies on psychiatrists' prescribing may reflect a lack of adequate stringency or weak enforcement. Importation limitations of our analyses include our inability to measure the individual physician exposure to industry influence, only to exposure to policies at their institutions, and our inability to measure the appropriateness of prescribing.

Implications: Calls for stricter regulation of physician-industry interactions may reduce prescribing of expensive, new medications but are tempered by concerns that such restrictions would slow adoption of novel new therapies.

Source of Funding: NIMH R01 MH093359.

Cost of Mental Health in Post Conflict Communities in Northern Uganda

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Abstract

Background: Despite the high burden of mental illness in post conflict communities, there is a dearth of evidence on the costs of mental illness incurred by both the provider and mental health clients. Estimating the economic burden of mental health is not only important in advocating for more resources but also provides an important input in the evaluation of cost effectiveness of interventions needed to address this high burden of mental illness in these settings.

Aims of the Study: To estimate the economic cost per mental health client in post conflict communities in northern Uganda.

Methods: Data was collected from 12 health facilities providing mental health care and a randomly selected sample of 324 mental health clients attending these health facilities. Different questionnaires were used for health facilities and the patients. This analysis adopts a societal perspective which considers the costs incurred by health care providers and the costs incurred by the clients and their families including both the costs of care and productivity losses. Costs were computed retrospectively (2013). The ingredients approach where each of the constituent cost components of the resources consumed are identified, quantified/measured and then valued using a unit cost was used. The unit costs used were the replacement prices of commodities being valued. Capital costs were annualised using a discount rate of 3% and country specific useful life for different capital items.

Results: The results show that there was limited availability of inputs needed for provision of mental health services at the facilities.

This was especially so for drugs and human resources specific for the provision of mental health care. The mean annual cost per mental health client was \$282.2. About half (47%) of the mean annual cost per mental health client was spent on outpatient services (excluding drugs). Drugs contributed 20% of the annual cost per mental health client. Productivity losses due to the time lost by the patient and care giver (13%) also constituted a significant proportion of the cost. Provider related costs constitute 41% of the total cost while the patient/care giver costs constitute 59% of the total cost.

Discussion: The results show a considerably high annual cost per mental health client which is about 50% of the per capita income of Uganda in 2013 (\$ 572). This high cost is despite the lack of key inputs needed by the mental clients especially drugs. This lack of key inputs at the health facilities may also explain the high outpatient costs due to frequent visits by clients to health facilities.

Implications: To address the burden of mental illness in low income countries, there is need for critical evidence, especially the economic burden of mental illness to form the rationale of investment and implementing interventions in mental health. Considering the societal perspective, and not just provider costs, is crucial for economic evaluation of mental health interventions as mental disorders are associated with high patient related costs.

Source of Funding: Grand Challenges Canada Grant Number GMH 0091-04.

Effects of a Global Payment and Accountable Care Model on Enrollees with Substance Use Disorders

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Abstract

Background: Payment and delivery system reforms are being considered in many countries to address concerns about health care spending growth and to improve efficiency, coordination, and quality of care. The Alternative Quality Contract (AQC) is one such initiative launched by Blue Cross Blue Shield of Massachusetts (BCBSMA) in the United States in 2009. The AQC combines global payment with performance incentives and resembles accountable care organization models authorized under the U.S. Affordable Care Act. There is no information on the impact of these types of models on substance use disorder (SUD) service use, spending, and quality of care. On the one hand, the AQC could improve SUD care by addressing the historical separation of SUD treatment financing and delivery from the rest of the health care sector. On the other hand, provider organizations at risk for a population's total costs may avoid accepting patients with or under-provide services to high-cost individuals such as those with SUD. The AQC model may affect the SUD population differently depending on whether these services are included in the risk contract. Notably, only a subset of AQC provider organizations accepted risk for SUD treatment costs.

Method: We use BCBSMA administrative claims (2006-2011) on enrollees in the intervention and comparison groups aged 13-64. We conducted difference-in-differences analyses to study the effects of the AQC on SUD service use and spending using two part spending models. We compare enrollees in two intervention groups – those in AQC organizations that did and did not accept SUD risk – with enrollees not participating in the AQC. In addition, in future ana-

lyses, we plan to use negative binomial regression to examine the effects of the AQC on the quantity of SUD services used and logistic regression to examine impacts on HEDIS-based SUD performance measures – treatment identification, initiation and engagement.

Results: Early results suggest no statistically significant overall effect of the AQC on the probability of SUD service. We did identify a small but significant increase in probability of SUD service use among enrollees in AQC organizations that did not accept risk for behavioral health (0.13 percentage point increase; 95% CI: 0.03, 0.22). However, we found no changes in SUD spending conditional on using SUD services. We have not yet completed analyses examining the effects of the AQC on the quantity of SUD services used or the effects of the initiative on SUD-related performance measures. These analyses will be complete by the March 2015 conference.

Discussion: An understanding of the effects of implementing global payment and accountable care models on individuals with SUD conditions is important for public and private payers considering these models, as well as providers operating under these types of contracts. Preliminary results suggest no overall effect of the AQC on probability of service use or spending among users. But, we did see evidence of an increase in the probability of SUD service use in the subset of enrollees whose AQC did not accept risk for SUD services. These findings suggest that the decision to accept risk for behavioral health can affect outcomes.

Source of Funding: NIDA

Cost-Effectiveness of Early Intervention in Psychosis in Comparison to Treatment as Usual

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Abstract

Background: Early intervention in psychosis (EIP) is an accepted policy internationally. There are improved outcomes in the short to medium term, and research has shown that EIP is cost-effective primarily from reductions in in-patient bed days. However, it is important to evaluate whether policies are applicable within a local context. There is limited economic evaluation in the field of mental health in Ireland and it is further recognized that there are a lack of patient level data.

Aims of the Study: The aim of this study is to perform a cost-effectiveness analysis of an EIP service in comparison to treatment as usual (TAU).

Methods: We examined two cohorts presenting with first-episode psychosis (FEP) between 2010 and 2012. One presented to an EIP service covering three mental health catchment areas, the other to a best practice community mental health service offering TAU. Both FEP cohorts were aged 18-65. The two cohorts were matched on key socio-demographic and clinical characteristics (n=160). The EIP cohort received a rapid assessment, evidence-based phase specific interventions, and was followed up at one year. The TAU cohort had a similar assessment by a research registrar at baseline and one year and received care as usual. The primary outcome measure was

relapse requiring admission/homecare by one year. Secondary outcome measures included the proportion not in education or employment and engagement with services. The economic evaluation was from the societal perspective and concentrated on direct medical costs, including in-patient, community mental health costs, other medical costs, medication and criminal justice costs.

Results: There was a significant reduction in the proportion who relapsed requiring admission/homecare (26% TAU v 15% EI $p=0.02$) There was no difference in secondary outcome measures. There was no significant difference in cost ($p=0.624$). The mean cost was €16,230 in the EI cohort and €17,290 in the TAU cohort. The ICER was -€1060/11% reduction in relapse requiring admission. Sensitivity analysis was performed to test the assumptions in the evaluation.

Discussion and limitations: The results are consistent with other studies internationally. Reduction in relapse requiring admission results in savings through reduction in in-patient days. Limitations include small numbers and the lack of unit cost information in Ireland which resulted in several assumptions.

Implications for Health Care Provision and Use: Early Intervention is a cost saving policy in the short term. Savings generated can be put toward improving community care and vocational rehabilitation.

Implications for Health Policies: It is difficult to generalize interventions shown to work in one country to other countries, as health service structures differ and there are both local and national variations in service structure and delivery. It is advisable to evaluate whether a policy is applicable within its local context.

Implications for Further Research: Further research in this area is required to evaluate mode of delivery of EIP services, and to determine which outcome measure is the most appropriate in this context.

Source of Funding: Health Research Board, Ireland HPF/2011/42

Utility Instruments in Evaluating Outcomes in First Episode Psychosis – Comparison of the Eq-5D-3L and the AQoL-8D

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Abstract

Background: Health-related quality of life is that part of quality of life that can potentially be influenced by health and healthcare. There is no gold standard for HRQoL measurement. The most common measure used in cost-utility studies is the European EQ-5D-3L. While the EQ-5D-3L is appropriate in depression and anxiety, there are questions as to whether the EQ-5D-3L is appropriate for use in mental health conditions such as psychosis. There is a marked ceiling effect and concerns over sensitivity to change over time. Another utility measure that has been shown to be more sensitive in mental health is the Australian AQoL-8D.

Aims of the Study: The aim of this study is examine the performance of the Eq-5D-3L and the AQoL-8D as an outcome measure in a population with first episode psychosis (FEP).

Methods: We examined a sample of people presenting with FEP to five rural and urban catchment areas in Ireland and followed-up at one year between 2012 and 2014. The FEP population were aged 18-65 with affective and non-affective psychosis. The sample was

part of a larger cohort participating in an economic evaluation of an early intervention service in comparison to treatment as usual. 100 completed the AQoL-8D, 116 completed the EQ-5D-3L. 94 (68%) completed both the AqoL-8D and the EQ-5D-3L and are the focus of this study. The EQ-5D-3L was valued using the UK TTO set, and the AQoL-8D was valued using the Australian TTO set as there are no Irish values for either measure.

Results: The mean EQ-5D-3L utility score at one year was 0.843 (range 0.088 to 1) and there was a large ceiling effect. The mean AQoL-8D utility score at one year was 0.696 (range 0.24 to 1) and there was no ceiling effect. The mean VAS quality of life score was 72. The kappa correlation co-efficient between the two measures was 0.004 which indicates a poor degree of correlation.

Discussion and Limitations: The EQ-5D has a large ceiling effect and the mean utility score was higher than that of the AqoL-8D. In order to tease out the implications of using the two utility measures further, we will compare the scores in those with and without affective psychosis. Limitations include a lack of baseline data to evaluate the instrument's ability to measure change in this cohort with FEP.

Implications for Health Care Provision and Use: The choice of outcome measure is very important in economic evaluations. Patient satisfaction and quality of life are important measures to assess; however there is lack of correlation between observer rated and subjective quality of life measures in psychosis.

Implications for Health Policies: Multiattribute utility instruments should facilitate comparing outcomes across conditions and interventions; however, the EQ-5D may be too insensitive in psychosis. This has implications for those distributing resources according to findings from cost-utility studies evaluating interventions for people with psychosis.

Implications for Further Research: Further research in this area is required to evaluate the AqoL-8D in populations with psychosis, and to evaluate alternatives to the convenient Eq-5D.

Source of Funding: Health Research Board, Ireland HPF/2011/42)

Using Technology to Improve Access, Quality and Outcomes: Tobacco Treatment in Mental Health Settings

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Abstract

Introduction: Smoking cessation pharmacotherapy is effective but underprescribed by clinicians and underutilized by people with mental illnesses, who smoke at high rates and die prematurely of smoking-related diseases. A dual approach involving both prescribers and patients is needed to increase access to effective cessation pharmacotherapy. Educational outreach to clinicians can improve prescribing of evidence-based treatments, but distances impede widespread use of this practice. Little research has assessed whether videoconference can effectively deliver educational outreach. Motivational interventions can increase engagement of smokers into treatment, but little research has evaluated the use of technology in delivery of such interventions to smokers with mental illness. We conducted a randomized, controlled trial of in-person vs. videoconference educational outreach to clinicians for smoking cessation pharmacotherapy across an American state mental health system. At the same time, smokers with mental illness were invited to use a Internet-based brief evidence-based motivational intervention designed to motivate

them to use cessation treatment to quit smoking.

Methods: We randomly assigned clinics across the state to receive in-person or videoconference educational outreach with audit and feedback for cessation pharmacotherapy. Prescribers completed brief questionnaires before and after the intervention. Over the same time period, all smokers at clinics were invited to participate in the Internet-based motivational intervention. With segmented regression analysis of interrupted time series, we evaluated prescribing trends in statewide Medicaid pharmacy claims for nicotine replacement therapy (NRT) and varenicline, with interaction terms for the effect of intervention type (in person vs. videoconference). We also assessed smokers' engagement into cessation treatment via clinic records.

Results: Prescriber satisfaction with the videoconference educational intervention was high; prescriber attitudes became more positive. With interaction terms in the model, the time trend for filled NRT prescriptions increased after the intervention compared to before ($p < .01$). Although trends after the intervention were different at centers receiving in-person compared to videoconference educational outreach ($p < .01$), the overall impact did not favor in-person delivery. Additionally, the time trend for filled varenicline prescriptions increased ($p = .04$), but type of intervention delivery did not influence varenicline fills. In two years, over 1000 smokers completed the brief Internet motivational program; 43.2% went on to attend at least one cessation treatment visit at the clinics.

Conclusion: This study suggests that single session videoconference educational outreach delivered to prescribers could be an effective, scalable approach to increase access to evidence-based cessation pharmacotherapy for mentally ill smokers. Additionally, Internet delivery of brief evidence-based motivational interventions can increase patient engagement in cessation treatment. This research suggests that technology can be used to increase access to high quality interventions for the mental health workforce and for patients with mental illness.

Source of Funding: None declared.

Health Economic Evaluation of Job-Stress-Induced Production Losses in Switzerland

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Abstract

Introduction: We estimate the impact of work-related stress on productivity losses in Switzerland in 2014, focusing on the losses arising from short-term absence (absenteeism) and reduced productivity while at work (presenteeism). We conducted a survey among a representative sample of the Swiss working population. The WPAI General Health questionnaire is used to measure health-related absenteeism and presenteeism. The level of work-related stress is measured by an index combining the standardized means of job demands and job resources, based on a series of questions on negative and positive indicators of employee well-being. We hereby follow the concept of stress models of the occupational health literature, which state that job stress is the result of a disturbance of the balance between the requirements employees are exposed to and the resources they have at their disposal. The yearly health-related productivity loss is estimated to amount to 9600 CHF (Swiss Francs) per average employee. Extrapolated to Swiss population this accounts for 7% of GDP, whereof 2% are due to absenteeism and 5% are due to presenteeism. Descriptive evidence shows that compared to employees with a balanced ratio between resources and

demands, the top quartile of employees with an imbalance towards demands shows a 6 percentage point higher health-related productivity loss (with 5 percentage points being due to presenteeism and 1 percentage point being due to absenteeism).

Method: We use a simple OLS model to estimate the impact of a work-related stress index (measuring the imbalance between job demands and resources) on health-related productivity losses.

Results: Regression results indicate that an increase of the index by one point (on a scale between 0 and 100) reduces individual productivity by 433 CHF per year. The quantitative implication of this result can be better understood by means of the following thought experiment: The result indicates that the Swiss GDP could have been increased by 1% if each employee would have experienced at least a balanced ratio between resources and demands at workplace. Or, conversely, a productivity loss of the amount of 1% of Swiss GDP could have been prevented if no employee would have experienced relatively more job demands than resources.

Discussion: These results might be informative for human resource management. Especially in firms which already use a tool to identify key resources and demands, these result might help to better assess the benefits of interventions aimed at reducing job demands and increasing the most important job resources.

Source of Funding: None declared.

Federal Parity Associated with Changes in Use of Out-Of-Network Providers

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Abstract

Background: The goal of the federal Mental Health Parity and Addiction Equity Act, implemented in 2010, is to eliminate differences in financial requirements and treatment limits between behavioral health and general medical care. Unlike almost all prior state parity laws, the federal law requires that out-of-network (OON) mental health benefits be equivalent to OON general health benefits. **Aims:** Our objective is to examine the effect of federal parity on OON behavioral health care use and spending.

Methods: We consider health care claims from Truven Health Analytics for individuals ages 18-64 with any behavioral health service use (2007-2012). We examine mental health and substance use disorder treatment separately. For each month of our study we calculate the following three outcomes for mental health and then for substance use disorder (SUD) treatment: (i) proportion of individuals who used an OON mental health/SUD service, conditional on any service use; (ii) average total spending on OON mental health/SUD services, conditional on any OON service use; and (iii) average number of OON mental health/SUD visits, conditional on any OON service use. Interrupted time series analysis models include parity indicator, linear time trend, calendar month and control for serial correlation. To consider whether results are due to changes in general health benefit design we consider similar outcomes for diabetes.

Results: During our study period the proportion of individuals receiving any OON mental health service declined from 18.1 % to 11.7 %, with an immediate drop of 3.6 percentage points ($p < .01$) at parity implementation. Among OON mental health service users, monthly total spending on OON services increased at parity by \$23 ($p < .05$) and there was a small but significant increase in the number of visits (.10-.15 visits; $p < .05$). In contrast, for SUD treatment we find a significant increase in the trend of any use of OON treatment at parity (from 13.7 percent at parity implementation to 17.4 percent

at the end of the study period; $p < .05$). This increase in use of services is associated with both significantly more visits per month, and more expenditures per month. For example, the mean predicted expenditures per month for OON SUD treatment increased from \$605 to \$1481 between January 2010 and the end of our study period ($p < .01$).

Discussion: There was concern that requiring equal coverage for OON services under federal parity would lead to large increases in OON service use and reduce insurer's ability to manage utilization. This study suggests that OON service use may increase, but the increase was unlikely to drive large increases in overall health care spending. Limitations of this study include lack of a comparison group and that we do not have data on network adequacy or balance billing.

Implications for Future Research: To determine policy implications, future research should consider whether the changes in out-of-network services had an effect on behavioral health outcomes.

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Cost-effectiveness of Models of Care for Young People with Eating Disorders (CostED)

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Abstract

Background: Anorexia nervosa is a serious eating disorder and mental health problem that can last for many years and can be fatal. Young people are those most vulnerable to the condition. Anorexia is an expensive illness to treat, often incurring lengthy hospital stays which disrupt all aspects of the patient's life. Hospital admissions are not always helpful and readmission is common. Currently in the UK, there are two main types of services available in the community for young people with anorexia nervosa: (i) standard care provided by general child and adolescent mental health services (CAMHS), and (ii) specialist eating disorder services provided by dedicated, multidisciplinary teams. Evidence suggests that specialist services are better at preventing hospital admissions, and are more effective and more acceptable to users and carers than general CAMHS. Despite this, specialist eating disorder services for young people are patchy or lacking in many areas of the UK. Currently, there is a lack of good quality evidence of cost-effectiveness of specialist eating disorder services, which prevents us from putting a strong case for these specialist services to be set up.

Aims: This study, the largest CAPSS (Child and Adolescent Psychiatric Surveillance System) study to be carried out in the UK, aims to evaluate the effectiveness and cost-effectiveness of specialist eating disorder services compared to general CAMHS, in order to assess whether increased investment in specialist services for eating disorders would benefit the young people and their families and would provide good value for money to the British National Health Service (NHS). Our objectives are: (i) to identify all new incident cases of children and young people (aged 8-17 years and 11 months) with DSM 5 anorexia nervosa; (ii) to collect data on the services in which they were treated and track their progress over 12 months; (iii) to describe and classify current pathways of care for young people with anorexia across the UK; (iv) to estimate service effective-

ness and cost-effectiveness; 5) to explore the impact on cost and cost-effectiveness of potential changes to the provision of specialist community-based services using decision analytic modelling techniques.

Methods: This study uses an established CAPSS surveillance methodology to provide accurate up-to-date data on the incidence of anorexia nervosa in young people in the British Isles. A decision tree will be constructed to track the progress of a young person with anorexia through different services, and to compare the costs and outcomes of alternative services using data on: (i) Probabilities of moving from one service to another, (ii) Costs and (iii) Outcomes associated with each service. In parallel, we will conduct a qualitative study of the views of services held by young people, parents and carers, using thematic analysis.

Study Progress: The CostED study has started recently and is at the early data collection phase. Therefore results will not be presented until a later stage, and instead we will focus on the study methodology and rationale.

Implications for Health Care Provision: This study will enable us to make recommendations about which types of services provide the best value for money and have the greatest impact on the health of young people with anorexia nervosa.

Source of Funding: None declared.

Trends in Youth Antidepressant Use and Switching Following U.S. Food and Drug Administration Warnings: A Disparities Analysis

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Abstract

Background: In 2004, the U.S. Food and Drug Administration (FDA) applied a "black box warning" (BBW) to antidepressant medications addressing the risk of suicidal ideation in younger users. The BBW may have affected minority youth differently because they face greater barriers to good psychiatric care and may have different cultural attitudes towards antidepressants.

Aims of the Study: (i) Assess how antidepressant use by youth changed across racial/ethnic groups after the BBW; and (ii) Assess switching to fluoxetine, the only FDA-approved SSRI antidepressant for pediatric depression until 2009.

Methods: Data comes from 2002 – 2009 Medicaid Analytic Extract files for California, Florida, New York, and North Carolina, including 3,300,509 White; 2,479,730 Black; and 5,139,252 Latino Medicaid-insured youth (5-17 years). Outcomes included any antidepressant use and switch to fluoxetine from another antidepressant. We completed an interrupted time series analysis of 288 monthly rates of use aggregated by race/ethnicity. We estimated ordinary least square regressions to predict changes in levels and trends of antidepressant use and switching by month and race/ethnicity.

Results: Comparing immediate level changes after the BBW, White rates of antidepressant use decreased more than Black and Latino rates. Regarding trends, antidepressant use across all groups was increasing prior to the BBW ($W > B$, $W > L$). After the BBW, White and Black youth (but not Latino) showed decreasing trends in prescribing rates ($W > B$). Taking into account rates before and after the BBW, the trend change for Whites saw the greatest overall decrease ($W > B$, $W > L$). Comparing level changes of switching to fluoxetine,

Black and Latino youth saw immediate decreases after the BBW. Regarding trends, switching was increasing for all youth prior to the BBW (W>B, W>L). After the BBW, White youth showed significant decreases in switching. All groups saw overall decreases in switching trends (W>B, W>L).

Discussion and Limitations: After the BBW, antidepressant use declined more rapidly among White than Black and Latino youth. FDA warnings may have “diffused” more quickly to prescribers of this group. We observed decreases in switching to an evidence-based treatment following the BBW. Since minority communities have less access to psychosocial treatment, emphasizing best available evidence as part of FDA warnings may support improved quality of treatment for minorities. Our claims data are limited to four states and may be subject to incomplete documentation of services.

Implications for Health Care Provision and Use: FDA warnings are a potent motivator of prescribing practices among certain populations.

Implications for Health Policies: Prescribers in minority communities may benefit from targeted continuing medical education to improve dissemination of warnings. Since minority communities have less access to psychosocial treatment, emphasizing best available evidence (e.g. switching options) in FDA warnings may improve quality of treatment for minority families.

Implications for Further Research: Clarify whether differences in antidepressant use can be explained by provider type (primary care vs. specialty mental health) or reduced access to psychosocial treatments across racial/ethnic groups. Determine what influences diffusion of warnings to providers of mental health care and families of youth receiving mental health services.

Source of Funding: None declared.

The Influence of Endogenous and Exogenous Attention on Numerical Distance Effect in Chinese Children with and without Dyscalculia

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Abstract

Background: Numerical distance effect (NDE) is one reaction of mental representation. Previous studies prove that children’s NDE appears at 6 old years. Some studies attest NDE impaired in dyscalculia children. Endogenous and exogenous attention which is classified by space clues technology have the different influence on NDE. However, the difference of influences produced by endogenous and exogenous attention on NDE between dyscalculia and normal children have not been well documented.

Aims of the Study: The aim of the study is to explore the influence of endogenous and exogenous attention on NDE of children with and without dyscalculia, and to examine how the effect is shaped by certain cue validity.

Methods: Posner’s classical experimental paradigms were employed to examine the effect of endogenous and exogenous attention on NDE with cue validity 80%. Thirty dyscalculia children and Thirty-one age and gender matched normal children were asked to

judge whether small Arabia numbers (1~4) / large Arabia numbers (6~9) were smaller or larger than 5.

Results: The experimental results were as follows: (1) in endogenous and exogenous attention experiments, dyscalculia children average response time was longer ($p<0.05$) and their error rate was higher ($p<0.05$) than normal children. (2) under the endogenous valid cue condition, both dyscalculia and normal children showed NDE in small numbers tests, and they showed no NDE under the endogenous invalid cue condition; (3) under the exogenous valid cue condition, two groups showed NDE in small and large numbers tests. Under the exogenous invalid cue condition, normal children showed NDE in small and large numbers tests, but children with dyscalculia showed no NDE in both tests.

Conclusion: The results suggest that the endogenous and exogenous attentions related NDE are partially impaired in dyscalculia children, but their endogenous attentions related NDE can be effectively improved with cue validity 80%.

Implications for Further Research: This motivates future work aimed at designing teaching curriculum that would utilize these findings in order to effectively improve mathematics achievement of dyscalculia children.

Source of Funding: This study was supported by National Natural Science Foundation of China (No. 81202226).

Understanding Provider Prescribing Behaviors after the Black Box Warning for Youth Antidepressant Use

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Abstract

Background: In 2004, the FDA issued a “Black Box Warning” (BBW) of the association between antidepressant use and suicidal ideation among youth. Previous studies identified that the warning decreased antidepressant use and diagnoses of depression among youth and adults, raising concerns that the BBW had a chilling effect on overall depression treatment. The effect of the BBW was differential by race/ethnicity. Trends in antidepressant use declined among whites but remained relatively steady among Blacks and Latinos.

Aims of the Study: To determine whether: (i) provider or patient behaviors were underlying the changes in antidepressant use caused by the BBW; (ii) primary care providers were more likely to change their prescribing patterns than specialty mental health care providers after the BBW; and (iii) the differential responses to BBW among racial/ethnic patients are reduced after adjusting for provider effects. We use claims from youth ages 5-17 with a depression diagnosis from the 2002-2009 Medicaid Analytic Extract data of California, New York, Florida, and North Carolina. SSRI antidepressants were identified using National Drug Codes in claims data.

Methods: For Aim (i), we estimate multilevel models of antidepressant use, including patient-level and provider-level random effects pre- and post- BBW, and fixed effects for level and trend. We measure the provider contribution to changes in antidepressant use by comparing the variance in the trend and level shifts explained at the provider level with the variance explained at the state and individual levels. To test hypothesis (ii), we also include interactions of an indicator of specialty care with level and trend indicators. To test hypothesis (iii), we assess the significance of the race times post-BBW level and trend interaction coefficients before and after accounting for provider-level random effects.

Results: Antidepressant use abruptly decreases after the BBW. Providers contributed 60% of the variance in use before the BBW and 54% of the variance after the BBW, suggesting they were major contributors to the level shift. Patients and their families contributed 6-7%, of the variance, suggesting their relatively small role in decision making. Racial/ethnic differences in antidepressant use trends dissipate but are not eliminated after adjusting for provider effects.

Discussion and Limitations: Providers are extremely influential in responses to risk warnings. Analyses not yet completed will assess whether and to what extent the BBW impacted primary care provider prescribing patterns compared to specialist mental health providers, and will measure the influence of providers on trend shifts as well as immediate shifts in rates.

Implications for Health Care Provision and Use: Research on the contribution of providers and patients to the overall BBW response is relevant to targeting messages for diffusion of future risk warnings and innovation.

Implications for Health Policies: Policies should focus on developing ways of mitigating the differential uptake of risk warnings among racial/ethnic minorities.

Implications for Further Research: Future research is needed to better understand how specialists and PCPs react to risk warnings for psychotropic medications and how this might differ for providers with a greater mix of racial/ethnic minority patients.

Source of Funding: None declared.

Estimating the Economic Burden of Schizophrenia in Ontario: A Prevalence-Based Cost of Illness Study

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Abstract

Background: Schizophrenia is a severe form of mental illness that affects about 24 million people worldwide. Although the incidence is low, the prevalence is high due to chronicity. Due to the specific characteristics of the illness, schizophrenia is considered to be one of the most costly mental disorders.

Aims of the Study: The purpose of the study was to estimate the net costs of treating patients with schizophrenia in Ontario in 2012, from the perspective of the payer (the ministry of health), using a prevalence-based cost-of-illness approach.

Methods: We selected all patients over the age of 15 with a diagnosis of schizophrenia in 2012, using a validated algorithm. Using linked administrative databases, we estimated net costs (i.e., the difference in cost for patients with schizophrenia and control subjects) associated with schizophrenia using a case-control design. Mean net costs were estimated by sex, age group (16-25; 26-45; 46-64; 65+) and health service.

Results: The mean age of our cohort was 50 and included slightly more males (53%). Patients were mostly from low-income, urban neighbourhoods. Patients had an average of 3 psychiatric hospitalizations with a mean length of stay of just under a month. The overall direct cost of patients with schizophrenia to the ministry of health was just over 2 billion Canadian dollars. Total net costs were estimated at 1.4 billion Canadian dollars. Mean net costs were slightly higher for females than males (\$10,517 vs. \$9,802, respectively), despite greater prevalence of males. The main costs drivers for the overall sample were psychiatric hospitalizations (45%), followed by long-term care (15%). Mean net costs were highest for patients 65+ and lowest for patients 26-45 (\$14,279 vs. \$8,332, respectively).

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The main cost drivers also varied with age. For younger patients, close to three-quarters of the cost were due to psychiatric hospitalizations (71%), while for older patients, costs were mainly due long-term care (41%), followed by psychiatric (19%) and non-psychiatric (18%) hospitalizations.

Discussion (with limitations): The direct costs of treating patients with schizophrenia are substantial and represent a sizeable portion of the Ontario health care budget (4.3%). Previous research has found similar findings in other jurisdictions. These estimates do not account for costs with addiction services.

Implications for Health Care Provision and Use: Our results suggest there are important utilization and cost differences between sexes, and age groups. Females have slightly higher mean costs of care compared to males. In addition, as patients with schizophrenia become older chronic disease and disability become more prominent, as reflected in higher costs with long-term care and non-psychiatric hospitalizations.

Implications for Health Policies: These findings highlight the need for health care systems to focus on both physical and mental illness simultaneously, especially for older patients with schizophrenia.

Implications for Further Research: Future research should focus on the predictors of utilization and cost over the life course of patients with schizophrenia. In addition, further work should examine how the interplay between mental and physical health contribute to increased utilization and costs among patients with schizophrenia as they age.

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Barriers to Mental Health Service Use among Workers with Depression and Work Productivity

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Abstract

Background: Although there is evidence that the treatment of depression can reduce its impact on work productivity, there is also evidence that up to 50% of workers with depression do not use mental health services. Three categories of barriers to service use have been identified: lack of recognition that help is needed; structural factors (i.e., finances, service availability); attitudinal factors (e.g., wanting to handle the illness independently, perceiving that treatment was ineffective, fear of stigma).

Study Aim: The purpose of this paper is to explore the barriers to mental health service use among workers with depression and to estimate their work productivity impacts.

Methods: The analyses use data from a population-based survey of 2,219 workers > 18 years in Canada's most populous province of Ontario and a model that was developed to study three types of barriers that interventions could address to increase the service use among workers with depression. The types of barriers considered were: (i) recognition, (ii) attitudinal and (iii) structural.

Results: The findings suggest that among workers with depression, the greatest barrier to accessing treatment is related to the recognition of the need for services. The largest productivity loss was associated with the presence of all three barriers that was estimated to be associated with a loss of 153,802 full-time equivalents which translates into a CAN \$3.97 million productivity loss. As the barriers are removed, productivity losses decrease. The largest percentage decrease in losses occurs when the recognition barrier is removed.

When only attitudinal and structural barriers remain, there is a 33% decrease in productivity losses. A 41% decrease is observed when only systemic barriers remain. Finally, when all three barriers are removed, the productivity losses decrease by 48.5% relative to the losses incurred when all three barriers are present.

Discussion: Of the three types of barriers, lack of recognition appears to be the most significant. If the recognition barrier were removed, there are workers who still would face either attitudinal or structural barriers or both. This suggests the challenge is more complex than simply helping people recognize their need for treatment. Indeed, the greatest decrease in productivity losses is observed when all three barriers are removed.

Implication: Employers may find that by addressing barriers to treatment, they could enhance the effectiveness of treatment in reducing work productivity losses.

Source of Funding: None declared.

Potential Benefit: A New Methodological Framework for Economic Evaluation of Adherence Promotion in Existing Medical Technologies

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Abstract

Background: Cost-effectiveness analyses use intent-to-treat (ITT) methodology to establish the causal effect and costs of being offered a medical technology, not the effects of receiving the intervention. Per-protocol analyses are often used to explore associations between intervention dose and outcomes, which likely introduce substantial bias.

Aims of the Study: To disseminate a new framework for economic evaluations that identifies the potential benefit of adherence promotion for existing medical technologies. Demonstrate feasibility through empirical application using data from a randomized controlled trial.

Methods: Data for our empirical application came from a multisite depression prevention trial testing a group cognitive behavior prevention (CBP) program in adolescents at high risk for depression. The Prevention of Depression (POD) study randomized 316 adolescent (aged 13-17 years) to usual care (n=157) or usual care plus CBP (n=159). We used depression-free-days (DFD) as our clinical outcome. We established a causal effect of CBP dose on DFDs and costs instrumenting on weather, travel time, and randomization. Estimates were used to identify the frontier of potential benefit across ranges of willingness-to-pay, which then informed budget thresholds for adherence promotion.

Results: We found that higher CBP dose resulted in significantly better DFDs at minimal additional costs across the distribution of adherence. For example, 75% dose of acute CBP resulted in a 250% better improvement in DFDs ($p<.05$) compared to ITT estimates. All tests of model specification and instrument performance were sufficient. Quantification of available resources for adherence promotion varies by decision-makers' willingness to pay for each additional DFD, and is a function of their underlying utility function. At a willingness-to-pay of \$50 per DFD gained, a benefit-maximizing decision maker would invest up to \$3.68 per unit gain in adherence and still be equally well off.

Discussion and Limitations: Higher dose of CBP results in higher DFDs and lower incremental-cost-effectiveness-ratios in at-risk adolescents. Classic cost-effectiveness analyses fundamentally assume a static state of dose. Our theoretical framework and application demonstrate that consideration of adherence promotion, and corresponding budget thresholds, may be important components in decisions about program implementation. This study may have limited generalizability; although the sample was representative of the study communities, only 25% of youth were members of an ethnic or racial minority. And youth predominantly came from working- to middle-class families with access to health insurance.

Implications for Health Care Provision and Use: Implementation of cost-effective medical technologies at "status-quo" levels of adherence may lead to welfare losses. Investment in adherence promotion may lead to superior cost-effectiveness outcomes or to better population-level benefit at fixed thresholds of willingness-to-pay.

Implications for Health Policies: Economic evaluations provide valuable metrics to compare programs competing for limited funds, but rely on ITT estimates of treatment effects. The framework introduced in this study demonstrates the potential benefit of investing in adherence promotion.

Implications for Further Research: Further research is needed to assess feasibility of identifying causal effects of intervention dose on outcomes. Future research built on this methodology may ultimately lead to richer evaluation of medical technologies that better inform decision-makers.

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Cost-effectiveness of a Brief Primary Care Cognitive Behavioral Therapy Intervention for Depressed Adolescents Who Decline Pharmacotherapy

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Abstract

Background: Depressed adolescents identified in primary care settings often have limited treatment options beyond antidepressant (AD) therapy. Brief cognitive behavioral therapy (CBT) has been shown to be an effective alternative to ADs but little is known about the cost-effectiveness of youth CBT programs.

Aims of the Study: To assess the incremental cost-effectiveness, from a limited societal perspective, of a brief primary care CBT program among depressed adolescents who declined AD therapy.

Methods: Data came from a randomized controlled trial conducted in a large US managed care organization (MCO). A total of 212 youth aged 12 to 18 with current major depression were randomized to treatment-as-usual (TAU) or TAU plus brief individual CBT. Outcomes included depression-free-days (DFD) and quality-adjusted life-years (QALYs). Costs of intervention, non-protocol health, education, social services, and families were included in cost estimates. Incremental cost-effectiveness ratios (ICER) comparing CBT to TAU were calculated over 12 months.

Results: Youth randomized to CBT had an average of 25.2 addi-

tional DFDs ($p=.023$) compared to TAU over 12 months. Total costs were not statistically different between groups but were \$725 less for CBT adolescents. Total costs without inpatient services were \$1,485 higher ($p<.001$) among CBT youth. Costs per DFD were *negative* \$29 (ICER=-\$29; 95% CI: -\$276 – \$51) for total costs and \$59 (ICER = \$59; 95% CI: \$27 – \$516) for total costs less inpatient services. Costs per QALY were *negative* \$11,456 (ICER = -\$11,456; 95% CI: -\$109,885 – \$20,471) for total costs and \$23,474 (ICER = \$23,474; 95% CI: \$10,876 – \$205,399) for total costs less inpatient services.

Discussion and Limitations: Brief primary care CBT among youth declining pharmacotherapy is cost-effective by widely accepted standards in depression treatment. Analyses inclusive of inpatient services demonstrate an offset in costs related to inpatient stays. Results are limited in generalizability across the US, only 25% of the sample was a member of a racial or ethnic minority. In addition, adolescents were current members of an MCO, most of whom received health benefits through a parent's employer.

Implications for Health Care Provision and Use: Brief CBT increases DFDs and QALYs compared to TAU and may be cost-saving. Decision-makers indifferent about inpatient services may also find brief CBT to be a cost-effective because of the relatively low ICERs for DFD and QALYs.

Implications for Health Policies: Decisions about whether to provide treatment options for depressed adolescents is constrained by finite resources. Economic evaluations provide valuable metrics to compare programs competing for limited funds. Results from this study demonstrate CBT may be cost-savings if a decision-maker weights impacts on inpatients services. Further, CBT is likely cost-effective even in scenarios where inpatients services are not considered in the decision-making process.

Implications for Further Research: Further research is needed to assess whether these results persist across more diverse samples and to provide better understanding of the effects of CBT on use of inpatient services. Future research, in combination with this study, may provide compelling evidence to adopt brief primary care CBT as an alternative to AD therapy for depressed adolescents.

Source of Funding: National Institute of Mental Health, R01-MH73918.

Health Insurance in China: Variation in Co-Payments and Utilization of Inpatient Mental Health Resources

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Abstract

Background: At present, China is carrying medical insurance system reform with a population of one billion three hundred million and has established three basic medical insurance including Urban Employee-Basic Medical Insurance (UE-BMI), Urban Residents-Basic Medical Insurance (UR-BMI), New Rural Cooperative Medical system (NRCMS). Commercial Medical Insurance (CMI) and Poverty Relief (PR) offer complement for basic medical insurance. The rate of medical insurance coverage has reached 95%. At the same time, mental health is increasingly becoming a huge public health issue in China. In order to inform the current on-going health care reform and medical insurance system reform, empirical evidences on the economic burden and utilization of health resources of mental inpatient with different co-payments in China are urgently needed to be researched. However, it is unclear whether the depth of insurance coverage affects hospitalization cost, the accessibility, length of stay (LOS) of inpatient mental health services or not.

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Objective: To investigate the difference of health care resource utilization among insured and uninsured inpatient with mental illnesses in China, and to analyze the inpatient utilization and cost under different co-payments.

Methods: Our study sample included 6726 insured mental patients and 1187 uninsured mental patients, who were hospitalized over an three-year period (2012-2014). The identification of the patient was based on the ICD-10 diagnoses. Using administrative data from Shandong Center for Mental Health (SCMH) and Dai Zhuang psychiatric hospital (DZPH), we used descriptive analysis to analyze the hospitalization cost of insured mental inpatient including individual pay cost, fund payment and co-payment ratio and length of stay and frequency of hospitalization during under different factors. Regression models were used to determine the relationship between the different co-payments, net of socio demographic characteristics and the likelihood of hospital utilization.

Results: Per capita hospitalization cost, LOS and frequency of hospitalization of insured mental patients was higher than uninsured mental patients. The PR patients had the highest hospitalization cost (20712.04 yuan, \$3384.32). Reimbursement rate, LOS and frequency of hospitalization of CMI were the highest. Compared with other co-payments, utilization of inpatient mental health resources of patients with 30-60% co-payment was lower.

Conclusions: Insured mental patients and patients used more health resources. Namely, their LOS, frequency of hospitalization and hospitalization costs were higher and there was serious moral hazard in mental health services, especially among mental patients with 0-30% and 60-90% reimbursement rate.

Source of Funding: None declared.

Inequity in Access to Alzheimer Disease Indicated Treatment Across Different Geographic Areas of Turkey

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Abstract

Background: Alzheimer's disease (AD) prevalence is estimated around 8% among population aged above 65 years old, of which is expected to increase due to aging of population in Turkey. Public coverage is very high and all AD medications are fully reimbursed. Mental health policy values and targets are initially developed in 2006 and a long term action plan ⁽¹⁾ for 2023 is prepared in line with WHO principles. According to this plan, years lost with disability (YLD) due to AD represent 1.5% and 1.8% of total YLD in males and females, respectively. Incidence and prevalence rates are known to be similar among geographic regions and different genetic communities. Thus drug utilization per patient should be expected to be equal across regions within a country.

Aims of the Study: To assess the differences in the utilization of drugs indicated for AD treatment across different geographic areas in Turkey and to identify the factors that may influence possible disparity in the usage.

Method: Summary data for all 81 cities in Turkey have been collected. The data include IMS sales (standard unit sales data of all products indicated for AD -memantin, rivastigmin, donepezil, galantamin), demographic (age distribution, education level, population density etc.), health policy (number of family physicians and specialists, hospital beds, nursing houses, average hospital admission rate) and affordability data (social security coverage rate). We calculated

“utilization score” for all cities, dividing the number of standard units sold by the number of subjects who are assumed to have AD. A composite “indicator score” was calculated for all cities, summing the weighted values of all indicators. The relationship of the indicators and the composite indicator scores with “utilization score” were analyzed by means of Pearson and Spearman correlation analysis as needed. Then, a multivariate regression model was built to determine the degree of impact of each indicator.

Results: There were significant differences in the relative utilization of AD treatments among cities and regions. Generally industrialized and larger cities had higher utilization than smaller and/or less-developed cities by means of infrastructure. Also parameters related with increased demand for care and more efficient use of drivers of diagnosis was correlated with utilization scores.

Discussion: As a result of Turkish healthcare system reform, there have been improvements in access to healthcare ⁽²⁾ (e.g. per capita hospital visits increased from 2.0 in 2002 to 4.9 in 2011) as well as in the quality of mental health services in the last decade. ⁽³⁾ Potential drivers in geographical disparities are assumed as scarcities in healthcare infrastructure and regional socio-economic factors, and their correlation will be further explored.

Implications for Health Policies: Policy actions can improve access to care or demand to treatments, such as increasing number and/or capacity of nursing homes, specialists (especially neurologist) number per patient and disease awareness.

Implications for Future Research: Secondary research on relevant publications and expert opinion needed to be able to gain deeper understanding of all other factors. Controlled studies should be conducted for further exploration of potential factors.

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Regional Variation in Physician Adoption of Antipsychotics: Implications for Drug and Medical Spending in Medicare

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Abstract

Background: The substantial regional variation in US Medicare prescription drug spending is driven by higher prescribing of costly brand-name drugs in some regions. Regional differences in brand-name prescribing likely arise from differences in the speed of diffusion of newly-approved medications. Second-generation antipsychotics (SGAs) were widely adopted for treatment of severe mental illness, as well as several off-label uses. U.S. antipsychotic treatment is primarily financed by public payers such as Medicare and Medicaid, which face long-term financing problems. Rapid diffusion of new drugs to treat mental illnesses likely increases drug spending but its relationship to non-drug spending is unclear.

Aims: We examine the association between region-level measures of physician SGA adoption and antipsychotic spending and non-drug medical spending among disabled and elderly Medicare enrollees using antipsychotics.

Methods: We linked physician-level data on antipsychotic prescribing from an all-payer prescribing dataset from IMS Health (Xponent™) to patient-level data from 2009-2010 Medicare claims. Our sample included all US psychiatrists and a random 5% of primary care providers with at least 10 antipsychotic prescriptions per year from 1997-2011. We constructed a measure of physician adoption of 3 SGAs introduced during this period (quetiapine, ziprasidone and aripiprazole). We then assigned physicians to one of 306 U.S. hospital referral regions (HRRs) and measured the average physician antipsychotic adoption time per region, weighted by prescribing volume. Using Medicare claims for a random sample of 1.6 million Medicare beneficiaries, we identified 164,742 antipsychotic users. A generalized linear model with gamma distribution and log link was used to estimate the effect of adoption speed on beneficiary-level antipsychotic spending and non-drug medical spending among antipsychotic users adjusting for patient demographic and socioeconomic characteristics, health status, eligibility category, and whether the antipsychotic was for an on- vs. off-label use.

Results: The mean age in our sample was 63 years, 41% were male, and 83% had incomes below 138% of the U.S. federal poverty level. Only 45% of antipsychotic users in Medicare had an on-label indication. Mean antipsychotic spending among users was \$2,922 (SD=\$4,165). Mean non-drug health care spending among antipsychotic users was \$20,245 (SD=\$31,771). The weighted average time to first adoption varied four-fold across HRRs. On average, HRRs with a faster composite time to SGA adoption had higher total antipsychotic expenditures and lower non-drug health care spending.

Discussion: These findings suggest wide variation in the speed of adoption of new antipsychotic medications across regions. While adoption speed was positively correlated with antipsychotic expenditures, it was negatively correlated with non-drug spending, suggesting a possible offset. Our analysis is limited to Medicare and may not generalize to other payers. Also, claims data do not allow the measurement of health outcomes, which would be important to evaluate when calculating the value of rapid vs. slow technology adoption.

Implications: This study will provide important findings on the relationship between the speed of adoption of new antipsychotic medications and drug and non-drug medical spending for payers and policymakers seeking to maximize the value of health care expenditures.

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Cost-effectiveness of Paliperidone Palmitate Versus other Antipsychotics for the Treatment of Schizophrenia in France

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Abstract

Objective: To estimate the cost-effectiveness of paliperidone palmitate (PLAI), a once-monthly long-acting injectable (LAI) atypical antipsychotic, compared to the most common antipsychotic strategies in France.

Methods: A Markov model was developed to simulate the progression of a cohort of schizophrenic patients through four health states (stable treated, stable non-treated, relapse and death) and up to three lines of treatment. PLAI was compared to risperidone LAI

(RLAI), aripiprazole LAI (ALAI), olanzapine LAI (OLAI), haloperidol decanoate (HLAI) and oral olanzapine (OO). Costs, quality-adjusted-life-years (QALYs) and number of relapses were assessed over five years based on three-month cycles, and discounted at 4%, from a health insurance perspective. Patients were supposed to be stabilised after a clinical decompensation and entered the model into an initiation phase, followed by a relapse prevention phase in case of success. In the prevention phase, relapse rates were derived from hospitalisation risks based on French real-life data in order to capture the adherence effects. Safety and utility data were derived from international publications. Costs came from French health insurance databases and publications. Robustness of results was assessed through deterministic and probabilistic sensitivity analyses.

Results: PLAI was the less costly LAI and associated with an incremental cost-effectiveness ratio (ICER) of €2,474/QALY gained and €1,828/relapse avoided versus OO. RLAI and PLAI were associated with the highest number of QALYs (i.e. 3.7642 for RLAI and 3.7634 for PLAI). PLAI dominated all other LAIs in terms of relapse but OLAI. Nevertheless, PLAI was highly cost-effective versus OLAI (ICER of €1,592,388/relapse avoided for OLAI versus PLAI).

Conclusion: This analysis is the first to assess the cost-effectiveness of antipsychotics based on French observational data. PLAI was found to be the least expensive LAI antipsychotic from a French payer perspective. Oral therapies were less expensive but associated with lower levels of QALYs and more relapses compared to all atypical LAIs.

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Unintended Effects of Reimbursement Schedule in Mental Health Care

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Abstract

Background: In 2008 the Dutch government placed part of mental health care services, the curative mental health care, under regulated competition. The objective of the policy change was to improve efficiency in the sector. In this study we evaluate the introduction of a reimbursement schedule for self-employed mental health care providers in the Netherlands in 2008. The reimbursement schedule follows a discontinuous discrete step function once the provider has passed a treatment duration threshold the fee is flat until a next threshold is reached.

Method: We use a quasi-experimental design in which 10 percent of all mental health care providers are paid according to the new reimbursement schedule, while 90 percent of providers were not subject to the reform. This latter group serves as a control group. We use administrative mental health care data of the total Dutch population from 2008 to 2010. The data contains approximately 1.4 million observations in fifteen mental health care specialties. We study efficiency and unintended effects. We separate the two effects by using regression discontinuity design in our methodology. Providers' behavior around discontinuous fee thresholds are most likely explained by the change in fee, and not by other contemporary factors such as medical quality, treatment outcome, location or other unobserved factors.

Results: We find an efficiency effect. On the flat part of the fee

schedule mental health care providers tend to prolong treatment only if marginal benefits to patients outweigh marginal costs. We estimate a reduction in treatment duration by 2 to 6% and lower costs by 3 to 5% compared to the control group. However, we also find unintended effects: providers treat patients longer to reach a next threshold and obtain a higher fee. The data shows gaps and bunches in the distribution function of treatment durations, just before and after a threshold. In total, about 11 to 13% of treatments are shifted to a next threshold, resulting in a cost increase of approximately 7 to 8%. In comparison to a control group, the unintended effects offset efficiency effects resulting in an increase in total costs of about 3-4%.

Discussion: An important message of our study is that the unintended effects clearly demonstrate that mental health care providers react to financial incentives. Monitoring providers' behavior is therefore an important element for the system to function properly. We also discuss several options for improving the reimbursement schedule.

Source of Funding: None declared.

Effectiveness of Health System Services and Programs for Youth to Adult Transitions in Mental Health Care: A Systematic Review of Academic Literature

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Abstract

Background: Navigating a health system can be a challenging experience for many, especially when moving between health system services, as is the case for youth who transition out of child and adolescent mental health services (CAMHS). Youth shifting to adult mental health services often report experiencing frustrations with accessing care that adequately replaces the youth services they had received.

Aims of the Study: To assess the peer reviewed evidence on services/programs aimed at addressing youth to adult transitions in mental health services.

Method: A systematic review of academic literature

Results: Little data exists on the effectiveness of transition services/programs. While the available evidence supports meetings between youth and youth caseworkers prior to transitions occurring, it also verifies that this is not common practice. Other identified barriers to effective transitions were categorized as logistical (ineffective system communication), organizational (negative incentives), and related to clinical governance.

Discussion: Findings indicate little coordination exists between

AMHS and CAMHS systems, and that few transition programs for youth with mental disorders have been evaluated in academic literature. Greater integration within the mental health system itself, particularly between CAMHS and AMHS, is needed. Since neither CAMHS nor AMHS were reported to regularly communicate with each other in these studies, a mechanism that facilitates this process may have the highest potential for smoothing transitions set up costs, however, may be prohibitive. The primary limitation of these results is that the quality of evidence reported in the published articles limits the application of the findings.

Implications: The lack of research on the coordination and effectiveness of programs creates uncertainty as to whether youth with mental disorders are receiving all the help they may need or that they would benefit from during their transition period.

Source of Funding: None declared.

Price Elasticity of Demand for Psychiatric Consultation in a Nigerian Psychiatric Service

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Abstract

Objectives: This paper addresses price elasticity of demand (PED) in a situation where most patients make payments for consultations out of pocket. PED is a measure of the responsiveness of the quantity demanded of a good/service to changes in price. This study is examined in the context of an outpatient psychiatric clinic in a sub-Saharan African country.

Methods: The study was performed at the University College Hospital (UCH), Ibadan, Nigeria. Aggregate data were collected on weekly clinic attendance over a 4 year period March 2008- March 2012 representing 2 years before to 2 years after a 67% increase in price of outpatient psychiatric consultation. Average weekly clinic attendance prior to the increase was compared to after the price increase. PED for consultation was also estimated.

Results: Clinic attendance dropped significantly in the weeks following the price increase. There was a 37.8% reduction in average weekly clinic attendance. Price elasticity of demand for psychiatric consultation was -0.93 .

Conclusions: In comparison to reported PED on health care goods and services, this paper finds a relatively elastic PED in psychiatric consultation following an increase in price of user fees of psychiatric consultation.

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Risk of Bias in Trial-Based Economic Evaluations: Identification of Sources and Bias-Reducing Strategies

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Abstract

Objective: The objectives of this article are first to give an overview of the risks of bias in trial-based economic evaluations and, second, to identify how key sources for bias can be revealed and overcome (i.e. what bias-reducing strategies might be employed) in future trial-based economic evaluations in the field of health psychology.

Design: Narrative review discussing sources of bias in trial-based economic evaluations and bias-reducing strategies.

Results: We identified 11 biases and assigned them to a particular trial phase. A distinction is made between pre-trial biases, biases during the trial and biases that are relevant after the actual trial. All potential forms of bias are discussed in detail and strategies are shown to detect and overcome these biases.

Conclusion: In order to avoid bias in trial-based economic evaluations, one has to be aware of all the possible forms of bias. All stakeholders have to examine trial-based economic evaluations in a rigorous and stringent manner. This article can be helpful in this examination as it gives an overview of the possible biases which researchers should take into account.

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Examining Effects of Strong Alcohol Legislation on Heavy Alcohol Use in Young Men: Its Interaction with Personal Risk Factors

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Abstract

Background: Alcohol policies influence the visibility and availability of alcohol and they might set a more versus less restrictive playground for *other* risk factors of heavy alcohol use. In particular, people with a high propensity for problematic use may more readily engage in such use if alcohol is highly visible and available. Whereas alcohol legislation was shown to have a protective effect on heavy alcohol use, not much is known about its interplay with other risk factors of heavy alcohol use.

Aims of the Study: The present study aimed to examine the protective effects of alcohol policies on heavy alcohol use in young men. In particular, how these protective effects of alcohol policy strength interact with person-related risk factors (sensation seeking, antiso-

cial personality disorder, and attention-deficit/hyperactivity disorder). We hypothesized that the risk associated with person-related factors will be higher when alcohol policy strength is low.

Methods: We used the baseline data of the *Cohort Study of Substance Use Risk Factors*, a population-based cohort study in Switzerland. A total of 5701 young men ages 18-25 were included in the analysis. Person-related risk factors were assessed by sensation seeking, antisocial personality disorder (ASPD), and attention-deficit/hyperactivity disorder (ADHD). Heavy alcohol use included risky single occasion drinking at least monthly (RSOD) and alcohol use disorder as defined in DSM-5 (AUD). An index of alcohol policy strength was calculated by summing the number of policies implemented within each canton. Generalized linear mixed models were used to conduct multi-level analysis. We applied a two-level random intercept model with participants (level 1) nested within cantons (level 2).

Results: Alcohol policy strength had protective effects against RSOD and AUD, whereas sensation seeking and ASPD were risk factors for both RSOD and AUD, and ADHD was a risk factor for AUD. Sensation seeking and ASPD interacted with alcohol policy strength for both RSOD and AUD, whereas no statistical interactions were evident for ADHD. In contrast to our hypothesis, however, the protective effect of alcohol policy strength was lost in participants with high levels of sensation seeking or with an ASPD. In low sensation seekers, the probability of RSOD decreased from 0.38 in cantons with low to 0.14 in cantons with high policy strength. However, in high sensation seekers, it remained comparably high or even slightly increased from 0.73 to 0.76.

Discussion: Strong alcohol policies protect against heavy drinking and alcohol use disorder in young men, the protective effects of alcohol policy strength disappeared in high-risk youths with high sensation seeking and ASPD. The study does not allow for causal inference, however, as it was cross-sectional.

Implications for Health Policy: Strong alcohol policies are effective in reducing overall heavy alcohol use in population and should therefore be implemented. However, special or additional measures are needed for people with a high diathesis for heavy alcohol use. Short interventions and screening for sensation seeking in adolescents have been reported as promising approaches for these subgroups.

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Medicare Mental Health Cost-sharing Parity and Quality of Care for Beneficiaries with Schizophrenia

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Abstract

Background: Achieving parity between mental health (MH) and other medical/surgical insurance benefits has been a major policy goal for the last two decades, but little is known about the effects of parity on individuals with schizophrenia. Evidence in commercially insured populations suggests that parity has had limited effects on utilization, quality and spending. Medicare, which insures 40% of individuals with schizophrenia in the U.S., implemented cost-sharing parity for outpatient MH services for fee-for-service beneficiaries between 2010-2014. We examined the effects of implementing MH cost-sharing parity in Medicare Advantage plans between 2009-2010 for beneficiaries with schizophrenia.

Aims: To assess the associations between decreases in out-of-pocket costs for outpatient MH services and MH visit rates, continuity of outpatient care, and antipsychotic adherence.

Methods: We conducted a historical cohort study among Medicare Advantage beneficiaries with schizophrenia who were continuously enrolled from 2009-2010. There were 5,925 total subjects: 35% were dual-eligible for Medicaid and faced no cost-sharing for outpatient MH services; another 8.5% were enrolled in MA plans that already had MH cost-sharing parity; and the remaining 56.6% were enrolled in MA plans without parity in 2009 that reduced MH cost-sharing in 2010. We used Poisson, logistic, and linear random-effects models to assess changes in MH visit rates, the probability of experiencing a gap in MH visits >90 days, and antipsychotic adherence (proportion of days covered, PDC) associated with MH visit cost-sharing decreases; these models adjusted for age, gender, race, comorbidity risk scores, diagnosis of bipolar disorder, disability status, dual-eligibility status and receipt of the Part D low income subsidy.

Results: Among all subjects, the mean age was 56 years old and 50% were female. Among beneficiaries in non-parity plans, the mean out-of-pocket cost for a MH visit decreased from \$66 to \$30 from 2009-2010; those in plans with parity at baseline had mean out-of-pocket costs of \$30 in both years. In 2009, subjects had an average of 6.3 MH visits, 39.1% had at least one gap in MH visits >90 days, and the mean antipsychotic PDC was 62.0%. In adjusted analyses, beneficiaries with MH visit cost-sharing decreases had no significant changes in visit rates (RR=0.98, 95% CI: 0.90-1.07), the probability of having gaps in visits >90 days (OR=1.03, 95% CI: 0.72-1.48) or antipsychotic use (change=0.18 percentage points, 95% CI: -1.93-2.28) in 2010 vs. 2009 compared with those in plans with parity at baseline.

Discussion: On average, continuity of care and drug treatment adherence were poor among MA beneficiaries with schizophrenia. Decreases in out-of-pocket costs for MH visits were not associated with increases in MH visit rates, improved continuity of care, or adherence to antipsychotics in the first year after implementation in this population.

Implications for Health Policy: MH cost-sharing parity alone may not be sufficient to address gaps in care continuity or poor adherence to treatment for Medicare beneficiaries with schizophrenia. Work is needed to identify other potential barriers to recommended care.

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Trends in Mental Health Financing System in Four South-East European Countries

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Abstract

Background and Relevance: Achieving health system objectives requires substantial expenditure. In order to contain these expenditures and maximize their impact, it is essential that money is spent efficiently. Mental illnesses are universal, affecting people of all countries and societies, individuals at all ages. The global burden of neuropsychiatric disorders measured in disability-adjusted life years accounted for 13.1% of the total global burden of disease. There is lack of literature/understanding and analysis on mental health financing system in South East European countries.

Aims: (i) to describe the current status of mental health financing system in Albania, The former Yugoslav Republic of Macedonia, Romania and Bulgaria; (ii) to identify common trends in mental

health in the selected countries.

Methods: International databases: World Health Organization's (WHO) Health for All databases (HFA-DB) and The World Bank's World Development Indicators database (WDI 2000) and literature review in respective countries.

Results: Mental health services are financed from public health insurance in the Albania, The former Yugoslav Republic of Macedonia and Romania. Bulgarian model is specific: inpatient services are paid by public budget, outpatient services are paid by insurance. In Romania, there is the National Mental Health Programme financed from the state budget and the national unique social health insurance Fund. In Albania Ministry of Health is also financing all mental health services, three psychiatric Hospitals, though there is no published data (literature) on the percentage of health care expenditures toward mental health. In the Former Yugoslav Republic of Macedonia three percent (3%) of health care expenditures by the government health department are directed towards mental health. Of all the expenditures spent on mental health, 69% is directed towards mental hospitals. Meanwhile Bulgaria rates the lowest percentage only with 2.5% which is quite below the median value of mental health expenditure as share of total health expenditure in Europe (6.3%). Estimates of mental health expenditure as % of health expenditure for Romania are at the 3% level according to WHO. Total health expenditures in the selected countries have been growing at an unsustainable rate. Although within a general upward trend, expenditure levels differ substantially across countries, measured as a share of GDP.

Conclusions: Mental health care services in these countries are underfinanced in comparison to physical health care. Moreover, the effect is multiplied: the countries of Eastern Europe spend a lower share of the gross domestic product on total health expenditure and from this amount they spend a lower share of the total health expenditure on mental health services. Anyhow, in the four South East European countries selected, there is an effort to prepare strategic mental health documents giving so priority to mental health infrastructure.

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Cost-Benefit Analysis of the Restriction of Psychoactive Substances, the New Zealand Experience

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Abstract

Background: Use of synthetic cannabinoids (SCs) is associated with a range of mental health harms. Prior to 2013 SCs were freely available in New Zealand from shops and internet-based retailers. The 2013 Psychoactive Substances Act (PSA) was novel law that introduced a regulatory framework that allowed retail availability of SCs with acceptable safety profiles.

Aims of Study: To ascertain the change in direct health costs associated with SCs following the introduction of the PSA.

Methods: We performed a retrospective audit of case notes of patients presenting to an emergency psychiatric service, that sees all crisis assessments for the Dunedin area (population 122,000), in the three months prior and following the PSA and calculated the direct health costs.

Results: In the 3 months post-PSA, there was a 42% reduction in EPS contacts, and 52% reduction in patient presentations compared with the 3 months pre-PSA. This led to a 60 fewer bed days and 24 fewer emergency service assessments. The local cost (in US dollars) of psychiatric ward care is \$US 994/day, with EPS and ED assessments cost at \$US 474.40 and \$US 1237.60/visit, respectively. Based on these numbers, the reduced cost to Dunedin Hospital was \$US 69,600 over the 3 months post-PSA.

Discussion: We were not able to estimate indirect costs, such as unemployment, or damage to property. The estimation of patient stay came from a previous audit based in the inpatient unit that accepted patients from this emergency psychiatric service. The clinical presentation of patients was unchanged in all three audit periods. The population of New Zealand is 4.4 million. If the Dunedin experience is representative, the costs of SCs pre-PSA was \$US 20 000 000 /yr., and the cost savings post-PSA was \$US 10 000 000/yr.

Implications for Health Care Provision and Use and Health Policies: There was no change in clinical presentation but a change in the rate of presentation. This probably was due to a reduction in the retail availability of SCs rather than reduced toxicity of available products. The NZ health system has a limited budget, and a reduction in costs is clinically significant.

Implications for Further Research: The continuing presentation of patients was such that the PSA was amended, after a public campaign against SCs, in May 2014, and all available "low risk" SCs were required to demonstrate that they were safe before being licensed. To our knowledge, no substance, either novel or previously available, has been submitted for regulatory review. Since then, SCs presentations have become rare. Although the PSA created cost savings to the health system, the concerns of the community limited this experiment in regulation of SCs, and the full costs and benefits to the community at large have not been quantified.

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Practice Variations in French Public Psychiatry

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Abstract

Background: Guidelines are often lacking in psychiatry and therefore practice variations are expected to be significant. When they do not result from clinical differences or patients' preferences, practice variations can be a source of inequity and inefficiency and thus challenge quality of care. Yet research on the matter in French public psychiatry, which represents two thirds of the expenditure for mental health care, is nonexistent.

Aims of the Study: To provide evidence on practice variations in French adult public psychiatry and to describe their association with patients', hospitals' and environmental characteristics in order to provide a basis for quality of care and outcomes improvement.

Methods: Using data from the French national database which records all hospital stays and outpatient care delivered in psychiatric hospitals (RIM-P) for the year 2012, we computed variables to describe practice at both the patient and the hospital level. Factors potentially associated with practice variations were derived from a literature review. We adopted a positive approach to study variability: practice variables were described by the national mean, standard deviation, median, interquartile range, range and coefficient of var-

iation for aggregated variables. Patients' characteristics were extracted from the RIM-P and completed by a deprivation index computed at their zip code of residence. Hospitals' characteristics were extracted from administrative databases while environmental characteristics (in particular availability of social care) were computed for the hospital's catchment area after constructing those areas using geographic information systems and census data. Bivariate associations between practice variables and explanatory factors were assessed at the 0.05 significance level.

Results: 197 hospitals were included. 42% specialized in the care of psychiatric disorders and 12% were teaching hospitals. The mean age of patients was 47.5 and 54% were women. Variations were observed for all variables at the patient level (length of full-time inpatient stay, number of annual full-time inpatient stays and time until readmission) which presented high standard deviations and range. They were all associated with patient's age, sex, diagnosis and level of deprivation. For variables aggregated at the hospital level, coefficients of variation varied from 21% for the ratio of full-time hospitalization days out of the total number of care days to 42% for the median length of full-time inpatient stay. Mean and median lengths of inpatient stay were significantly higher in hospitals specialized in psychiatry and the ratio of full-time hospitalization days out of the total number of care days was higher in teaching hospitals.

Discussion and Limitations: Our results underscore practice variations in French psychiatry and will provide a basis for multi-level modeling which will simultaneously explore all potentially associated factors in order to disentangle unwarranted and warranted variations. The main limit results from the use of administrative databases, however it was the most cost-effective way to gather data on a national scale.

Implications for Health Policies: Practice variations in psychiatry are a reality that deserves attention from policy makers as unwarranted variations can challenge the quality of care. Research in this field should be supported to develop policies aimed at reducing such variations.

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Economic Conditions and Children's Mental Health

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Abstract

Background: An expansive literature studies the effects of economic conditions on mental health outcomes but ignores the possible effects on children. Among children, mental health outcomes far exceed physical health outcomes as detriments to human capital accumulation and future labor market outcomes.

Aims of the Study: The purpose of this study is to assess how economic conditions affect children's mental health status. If economic conditions affect children's health, it would represent an important spillover effect of recessions on individuals outside the labor market.

Methods: Using restricted-access data from the 1997-2013 United States National Health Interview Survey, we link state and metropolitan area-level unemployment data to household data on the health of children, including measures of children's mental health. We use linear and negative binomial regression models to measure the effect of local unemployment rates on children's mental health status while controlling for age, sex and race/ethnicity of each child in

addition to parental educational attainment and marital status—first for the entire sample, then for specific subpopulations.

Results: We find that higher unemployment rates are significantly associated with poorer measures of children's mental health. The deleterious effects of recessions on child mental health persist even in families less likely to be affected directly by job loss. We also find evidence that special education and early intervention service use for emotional problems rise when economic conditions worsen.

Discussion: We provide the first evidence to date on the effect of economic conditions on children's mental health. Our results suggest that the 2007-2009 Great Recession had an adverse effect on mental health equivalent to reducing family incomes by \$5,000 per year.

Implications for Health Policies: To the extent children's mental health problems have significant social costs and families may be constrained in paying for services, these results may motivate more counter-cyclical investments in child mental health services. If reductions in family income due to job loss explain our results, then public policy surrounding unemployment insurance may be a tool to mitigate the effects on children's mental health. For instance, the generosity of benefits could be modified to reflect the presence of children in the household.

Implication for Further Research: Future research should investigate the mechanisms linking economic conditions to children's mental health more thoroughly, including whether children's mental health responds to parental job loss, loss of family income or suppressed local economies.

Source of Funding: This work was supported by a Grant-in-Aid from the University of Minnesota Office of the Vice President for Research.

Cost-utility of Collaborative Care for Major Depressive Disorder in Primary Care in the Netherlands

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Abstract

Background: Major depression is a great burden for society, as it is common and associated with high disability and high costs

Aim of the Study: The aim of this study was to evaluate the cost-utility of collaborative care for major depressive disorder compared to care as usual in a primary healthcare setting. A societal perspective was taken.

Methods: A cluster randomized controlled trial was conducted to compare collaborative care with care as usual. A total of 93 patients were identified by screening. 45 patients received collaborative care and 48 received care as usual. Another 55 patients received collaborative care and 1 patient received care as usual after identification by the general practitioner (GP). The outcome measures were TiC-P, SF-HQL and EQ-5D respectively measuring health care utilization, production losses and general health related quality of life at baseline at three, six, nine and twelve months. A cost-utility analysis was performed in the collaborative care and care as usual group included by screening, and a sensitivity analysis that also contained patients identified by the GP.

Results: The average annual total costs in the care as usual group were €7,132 (95% C.I. 5,585, to 8,898) compared to €6,001 (95% C.I., 5,051 to 7,024) in the collaborative care group. From a societal perspective, the main cause for the lower costs in collaborative care was reduction of absenteeism. The average quality of life years (QALY's) gained were 0.02 higher in the collaborative care group,

so collaborative care was dominant. Taking a health care perspective, focussing on direct medical costs, collaborative care was less cost-effective as the costs for the collaborative care intervention group were higher than for the care as usual group. The sensitivity analysis, including the patients selected by the GP, again showed dominance of collaborative care over care as usual.

Discussion: The cost-utility analysis showed that collaborative care was dominant to care as usual. At a threshold of 20,000 Euro/QALY the probability that the ratio is acceptable is more than 90%. Collaborative care may be a promising treatment for depression in the primary care setting.

Implications for Health Care Provision and Use: Collaborative care seems, to be a cost-effective intervention. Further research should explore cost-effectiveness of long-term collaborative care.

Implications for Health Policies: The cost-effectiveness study will enable policy makers to indicate a cost-effective intervention for major depression from a societal perspective.

Implications for Further Research: As the intensity of collaborative care decreased after 9 months a stronger focus on maintaining response and remission may be an important issue for the future.

Source of Funding: This study was funded by Innovatiefonds Zorgverzekeraars

Cost-Effectiveness of Multidimensional Family Therapy for Adolescents with a Cannabis Use Disorder

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Abstract

Background: Multidimensional Family Therapy (MDFT) is a promising treatment for adolescents with a cannabis use disorder, as it not only targets the individual but also the systems surrounding the individual.

Aim of the Study: The aim of this study was to evaluate the cost-effectiveness of multidimensional family therapy (MDFT) for adolescents with a cannabis use disorder compared to cognitive behavioural therapy (CBT). Both a healthcare and a societal perspective were taken.

Methods: In this randomised controlled trial, 109 adolescents (CBT group; n=54; MDFT group; n=55) were randomized. Baseline measurements and follow up measures (3, 6, 9 and 12 months) were assessed by questionnaires. We applied the TiC-P, the SRD and the EQ-5D respectively measuring the health care utilization, costs related to delinquency and costs of crime, recovery and general health related quality of life.

Results: Excluding those with missing cost-data, 96 participants (MDFT: n=49; CBT: n=47) were included in the current cost-effectiveness study. From a health care perspective the average annual direct medical costs in the CBT group were €2,015 (95% C.I. 1,391 to 2,756) compared to €5,440 (95% C.I. 4,154 to 7,061) in the MDFT group. The average quality of life years (QALY's) gained were 0.06 QALY higher for the MDFT group than for the CBT group, which led to an ICER of 54,218 Euro/QALY and €43,333 per recovered patient. Taken a societal perspective, the cost increased to €21,281 (95% C.I. 12,286 to 32,350) for the MDFT group and €21,784 (95% C.I. 16,121 to 28,036) for the CBT group, which lead to an ICER of 7,962 Euro/QALY Euro/QALY and a cost per recovered patient of €6,364.

Discussion: This is the first comprehensive cost-effectiveness analy-

sis (CEA) of MDFT. It demonstrated that MDFT was cost-effective and that the ICERS improved when taking a societal perspective. These results underline the importance of adopting a broader perspective regarding CEA in mental health care. The relative benefits may accrue during lifespan, making MDFT even more cost effective in the long run.

Implications for Health Care Provision and Use: Although further research is necessary to investigate the long term cost-effectiveness, MDFT seems to be a cost-effective intervention.

Implications for Health Policies: The cost-effectiveness study will enable policy makers to indicate a cost-effective intervention for cannabis use disorder from a societal perspective.

Implications for Further Research: Research is needed to investigate the usefulness of the EQ-5D in adolescents, and to determine if there is a difference in cost-effectiveness between subgroups and which dimensions of quality of life in adolescents are the most affected by MDFT.

Source of Funding: This study was funded by ZONMW.

Unit Costs Related to Delinquency in Adolescents Following the Categories of the Self-Reported Delinquency Scale

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Abstract

Background: The growing interest in the cost-effectiveness of systemic treatments for criminal and/or addicted adolescents has been driven by increasing public demand for transparency of government funded projects. Costs related to delinquency are relevant to this subgroup of adolescents and as comprehensive cost-effectiveness analyses should be performed from a societal perspective, these costs have to be included. However, no unit costs are yet available to subtract these costs. The amount of delinquency is commonly assessed by the self-reported delinquency (SRD) scale and to acquire the costs, this amount should be multiplied by the unit costs. This study estimated the unit costs based on the categories of the SRD.

Aim of the Study: The aim of this study was to attain the unit costs that are related to delinquency following the categories of the SRD.

Methods: The Scientific research and documentary center (WODC) provided an overview for expenses made for prevention, tracing, prosecution, going on trial, implementation, support of suspects and perpetrators, support of victims, consulting legal experts and other activities in the Netherlands. Subsequently, these expenses were given for different types of criminal behavior, like robbery and vandalism. Additionally they provided the number of registered crimes and the percentage of crimes that is declared (based on victim reports), so registered criminality could be corrected for multiple suspects and declaration bias. As percentage of crimes, selling drugs and nuisance that are declared for traffic offenses were not included in the figures of the WODC, data from other sources were used.

Results: Unit costs were €20,939 for Robbery and theft with violence, €4,234 for simple and aggravated assault, €1,960 for simple theft/picket pocketing, €1,910 destruction/vandalism of private/public property, €1,819 for threat, €1,734 for forced sexual contacts, €1,694 for receiving, €1,449 for arson, €975 for unauthorized driving, €213 for driving under influence, €130 for selling hard drugs, €108 for discrimination, €108 for nuisance, €41 for selling soft drugs and €3 for traffic offenses.

Discussion: This is the first comprehensive study that provides unit costs which can easily be implemented in cost-effectiveness studies. Limitations are that the estimates subtracted were based on WODC data for persons between 12-79 years old. Also, the categories from the WODC did not always exactly agree with the categories of the SRD and subsequently data of other sources was used. Thirdly, citizens do not always declare offenses and so there may be a declaration bias. Finally, for calculating the number of suspects related to the categories of crimes, we assumed that suspects were always guilty and crimes were always cleared up.

Implications for Health Care Provision and Use: The determination of the unit costs leads to a better estimation of the cost-effectiveness of treatments from a societal perspective.

Implications for Health Policies: These unit costs will enable policy makers to indicate cost-effective interventions from a societal perspective.

Implications for Further Research: Research is needed to estimate the unit costs more specifically for certain subgroups (adolescents/adults) and on more detailed data sources.

Source of Funding: None declared.

Factors Explaining Priority Setting at Community Mental Health Centres: A Quantitative Analysis of Referral Assessments

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Abstract

Background: Clinicians at Norwegian community mental health centres assess referrals from general practitioners and classify them into three priority groups (high priority, low priority, and refusal) according to need where need is defined by three prioritization criteria (severity, effect, and cost-effectiveness). In this study, we seek to operationalize the three criteria and analyze to what extent they have an effect on clinical-level priority setting after controlling for clinician characteristics and organisational factors.

Methods: Twenty anonymous referrals were rated by 42 admission team members employed at 14 community mental health centres in the South-East Health Region of Norway. Intra-class correlation coefficients were calculated and logistic regressions were performed.

Results: Variation in clinicians' assessments of the three criteria was highest for effect and cost-effectiveness. An ordered logistic regression model showed that all three criteria for prioritization, three clinician characteristics (education, being a manager or not, and "guideline awareness"), and the centres themselves (fixed effects), explained priority decisions. The relative importance of the explanatory factors, however, depended on the priority decision studied. For the classification of all admitted patients into high- and low-priority groups, all clinician characteristics became insignificant. For the classification of patients, into those admitted and non-admitted, one criterion (effect) and "being a manager or not" became insignificant, while profession ("being a psychiatrist") became significant.

Conclusions: Our findings suggest that variation in priority decisions can be reduced by: (i) reducing the disagreement in clinicians' assessments of cost-effectiveness and effect, and (ii) restricting

priority decisions to clinicians with a similar background (education, being a manager or not, and "guideline awareness").

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Cost-effectiveness of Collaborative Care for the Treatment of Depressive Disorders in Primary Care: A Systematic Review

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Abstract

Background: In 2010, major depressive disorder accounted for 2.5% of the world's total global burden of disease with mean annual costs per patient in Europe estimated at €3,034. For treatment of depressive disorders, the framework of collaborative care has been recommended, which is a multifaceted intervention consisting of care management, a professional care-network, monitoring and evidence-based treatment. Collaborative care improves care for depression in the primary care sector, and is effective with depressive disorders. Yet, an earlier literature review did not find sufficient economic evidence to draw robust conclusions on the cost-effectiveness of collaborative care compared with usual care for the treatment of patients with depressive disorders.

Aim of the Study: The aim was to systematically review studies on the cost-effectiveness of collaborative care compared with usual care for the treatment of patients with depressive disorders in primary care.

Methods: A systematic literature search in major databases was conducted. Risk of bias was assessed using the Cochrane Collaboration's tool addressing seven specific domains. Methodological quality of the articles was assessed using the Consensus on Health Economic Criteria (CHEC) list for economic evaluations. To ensure comparability across studies, cost data were inflated to the year 2012, using country-specific gross domestic product inflation rates, and were adjusted to international dollars using purchasing power parities (PPP).

Results: In total, 17 cost-effectiveness analyses were reviewed. The included studies had sample sizes between n=65 to n=1,801 and time horizons between 6 months to 2 years. Between 42% and 89% of the CHEC quality criteria were fulfilled and in only one study no risk of bias was identified. A societal perspective was used by five studies. Incremental costs per depression-free day ranged from dominance to US\$PPP 64.89 and incremental costs per QALY from dominance to US\$PPP 874,562.

Discussion: Compared with incremental costs per additional QALY for collaborative care reported in an earlier literature review, the current range is considerably broader. Across all studies included in this review, the time horizons of the economic evaluations and the cost calculations varied considerably. Due to differences in methodological quality between studies and heterogeneous general characteristics, generalizability and comparability is debatable.

Implications for Health Policies: Despite our review improved the comparability of study results, cost-effectiveness of collaborative

care compared with usual care for the treatment of patients with depressive disorders in primary care is ambiguous depending on willingness to pay.

Implications for Further Research: A still considerable uncertainty due to inconsistent methodological quality and results among included studies suggests further cost-effectiveness analyses using QALYs as effect measures and a time horizon of at least one year.

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Longitudinal Predictors of Informal and Formal Caregiving Time in Community-Dwelling Dementia Patients

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Abstract

Objective: To investigate predictors of informal and formal caregiving time for community-dwelling dementia patients in a longitudinal approach.

Methods: Caregiving time for n=126 community-dwelling dementia patients was assessed by proxy interviews in four waves at 6-month intervals. Measurement of informal caregiving time was based on a German adaptation of the Resource Utilization in Dementia (RUD) questionnaire. Dementia severity was measured by the Clinical Dementia Rating (CDR). We used random effects models to estimate the effects of sociodemographic variables, comorbidity and dementia severity on informal and formal caregiving time.

Results: Dementia severity was associated with total caregiving time, mainly driven by informal caregiving time. Age was positively associated with total caregiving time, driven by formal caregiving time, while being married was positively associated with total caregiving time, driven by informal caregiving time. All need categories of informal caregiving time were strongly related to dementia severity, whereas none of the categories of formal caregiving time were related to dementia severity. Being married was positively associated with caregiving time in almost all categories of informal care. Caregiving time provided by private professional caregivers was positively associated with age and negatively associated with being married.

Conclusion: Findings accentuate the strong association between dementia severity and informal caregiving time. In order to meet the rising care need of elderly dementia patients, the informal care system should be supported. Yet, due to socio-demographic changes, the informal care system will reach its limits in the next decades. Hence, new models of care are urgently needed.

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Cost-effectiveness and Cost-utility of Short-term Inpatient Dialectical Behavior Therapy for Chronically Parasuicidal BPD (Young) Adults

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Abstract

Background: The efficacy of Dialectical Behavior Therapy (DBT) for chronically parasuicidal adults (BPD), has been shown in a number of studies. DBT is in essence an outpatient program. Still, some BPD patients are not sufficiently engaged in outpatient treatment and/or experience periodic exacerbation of severe self-injurious behavior making hospitalization necessary. Hospitalization thus seems inevitable under some circumstances, yet hospitalization is proven harmful in its own right. Consequently, there is an urgent need to develop and evaluate short-term inpatient treatment programs that (i) rapidly reduces core borderline symptoms like suicidal behavior, (ii) minimizes negative effects of an inpatient setting, and (iii) enhances compliance to outpatient treatment (iv) improve cost-effectiveness.

Aim of the Study: To assess the cost-effectiveness of an intensified adapted DBT program (12 weeks inpatient DBT + standard outpatient DBT) in comparison to standard outpatient DBT.

Method: Multicenter randomized trial among young adult patients (18-40 years) diagnosed with Borderline Personality Disorder and suicidal and/or self-destructive behavior. Primary clinical outcomes are the reduction of suicide attempts/self-destructive acts (measured by the Lifetime Parasuicide Count and Borderline Severity Index. For the utility analyses Quality of Life outcomes, measured by SF-6D was used. For the economic evaluation a societal perspective is adopted. Medical resource use and productivity losses are measured by the TiC-P, a patient-report questionnaire. Additional data on resource use are derived from patient records. Measurements are performed at baseline, and 3 and 6 after the start of treatment. The analyses are performed on basis of intention-to-treat using repeated measurement techniques. Sensitivity analyses are performed using bootstrapping.

Results: A total of 84 patients are included in the study (42 in the experimental and 42 in the control group). Participants were recruited from February 2012 until January 2014. Data of 6 months follow-up are currently available and are analyzed. These results will be presented.

Discussion: Standard DBT is a lengthy and thus expensive intervention. More-over, some BPD patient are not sufficiently engaged in outpatient treatment and/or experience periodic exacerbations of severe self injuries behaviour making hospitalization necessary. Therefore, this cost-effectiveness is needed to provide information about the actual costs and effect compared to the care as usual.

Implications for Health Care Provision and Use: The result of the current study might indicate that short-term inpatient care might be more cost effective in this severe patientgroup compared to care as usual. Initially, this will lead to higher costs due to inpatient care,

however, in the long run the overall costs are expected to be lower and higher quality of life.

Implications for Health Policies: Policymakers should take long-term costs and effects into account taking decisions in health care.

Implications for Further Research: Suicide is a serious health problem within severe psychiatric patients that needs further research.

Source of Funding: None declared.

Mental Health Care Patients and Their Combined Use of Other Hospital Services

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Abstract

Background: Research results have accumulated to show that the outcome or mortality of psychiatric patients is heavily affected by their general diseases. This raises questions if present organisation of services are too segmented and not in accordance with real combined needs.

Aims of the Study: To analyse how often mental health care patients also use services from other sectors (general/somatic medicine and addiction medicine) – and to study if there are some typical utilisation patterns.

Methods: The setting includes all adult psychiatric patients at Haukeland University hospital during the study period of the year 2013 (7216). The psychiatric units include both hospital departments and community mental health centres serving a population of 450 000. In order to study the flow between different units, the patient data material was structured so that episodes of care followed chronologically. The episodes were furthermore categorised by the care sector it was attached to. The combined information was linked to each unique *person*. Since our material includes services from our hospital only, the occurrence of combined use will be under-estimated.

Results: A major group, 43% of the psychiatric patients, also had contact with units within somatic medicine. On the other hand only 2.5% used services of addiction medicine during the period. 43% of the group with combined use of somatic and psychiatric services had an *inpatient* somatic episode. Furthermore, 12% of the group had a use of inpatient days that qualified them to be included in the “heavy-user”-category of somatic inpatients. The most frequent main diagnoses at the psychiatric services were within the ICD-10 categories of Affective disorders (29%) and neurotic disorders (22%). The somatic main diagnostic spectre was widespread, however with a high occurrence of unspecified or symptom based (a third of patients).

Discussion: The findings support the hypothesis of frequent combined use of services for psychiatric and somatic medical disciplines, while combined use with addiction medicine was found to be much lower than expected. For the first group it is to be noted that the use of inpatient days was rather high with 12 pct. also to be considered as “heavy users”. So the use of somatic services is not negligible, but the question is whether it is sufficient. The finding of high occurrence of unspecific diagnoses might also raise questions as to whether the symptoms are sufficiently diagnosed and followed up.

Implications for Health Care Provision and Use: The hospital has to consider if re-design of the organisation is needed in order to facilitate the “transversal” flow between different sectors of care.

Implications for Health Policies: There may be a need to change strategies for competence building in health care personnel – to strengthen more general competence profiles.

Implications for Further Research: To study the succession of contacts like readmissions and patterns of services use in more

detail. More importantly: if different patterns of care lead to differences in outcome.

Source of Funding: None declared.

Evidence for Distinguishable Treatment Costs Among ICD-10 Schizophrenia Spectrum Disorders Subtypes

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Abstract

Background: Schizophrenia spectrum disorders result in enormous individual suffering and financial burden on patients and on society. In Germany, there are about 800,000 individuals suffering from schizophrenia or schizoaffective disorder, a combination of psychotic and affective symptoms. Given the heterogeneous nature of these syndromes, one may assume there is a difference in unit healthcare costs among patients with schizophrenia and schizoaffective psychosis. However, regarding the present version of a new national lump-sum reimbursement system this issue has not been addressed yet.

Aims of the Study: The aim of this study was to compare the duration of treatment and overall costs associated with schizophrenia and schizoaffective disorder.

Methods: The study comprised a retrospective audit of data from 119 patients diagnosed with paranoid schizophrenia (F20.0) and 70 patients with schizoaffective disorder (F25) who were admitted to the Department of General Psychiatry in Heidelberg, Germany between 1st January 2013 and 31st December 2013. Daily in-patient costs, duration of treatment and overall residential treatment costs were collected after the end of hospitalization from each patient.

Results: Overall residential treatment costs were significantly higher for individuals suffering from schizoaffective disorder than patients with paranoid schizophrenia ($p = .026$). Individuals with schizoaffective disorder had a longer duration of stay than patients with paranoid schizophrenia ($p = .027$). We found no difference in daily costs between schizophrenia and schizoaffective disorder ($p = .973$).

Discussion and Limitations: The therapy costs of patients with schizophrenia spectrum disorders are mostly dependent on diagnosis and duration of treatment. The differences in overall treatment costs seem to be related to the different length of stay between patients with schizophrenia and schizoaffective disorder rather than to the clinical characteristics or the daily costs, possibly due to additional affective symptoms or diagnostic uncertainty. Our sample size may be seen as a potential limitation this study. However, the exploratory approach of our study accounts for the sample size.

Implications for Health Care Provision and Use: Our results may provide important clues for the development of lump-sum reimbursement systems in Germany.

Implications for Health Policies: There is some evidence for distinguishable treatment costs among ICD-10 schizophrenia spectrum disorders subtypes in Germany.

Implications for Further Research: We strongly advocate retrospective audit of data from larger patient samples. Future studies should investigate data of schizophrenia spectrum patients with comorbid psychiatric and substance abuse disorders.

Source of Funding: None declared.

Advantages of the Net Benefit Regression Framework: A Case Study of the Cost-Effectiveness of a Collaborative Mental Health Care Program for People Receiving Short-Term Disability Benefits for Psychiatric Disorders

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Abstract

Background: Cost-effectiveness analysis (CEA) is a popular type of economic evaluation that frequently accompanies studies of new treatments and interventions. One of its main rationales is the high cost of health care. In many countries, CEA is required as “economic evidence” to inform health care funding decisions. The benefits of conducting economic evaluation to evaluate new interventions in the workplace are also becoming more recognized.

Study Aims: Economic evaluations commonly accompany trials of new treatments or interventions; however, regression methods and their corresponding advantages for the analysis of cost-effectiveness data are not well known. This study addresses this problem.

Methods: To illustrate regression-based economic evaluation, we present a case study investigating the cost-effectiveness of a collaborative mental health care program for people receiving short-term disability benefits for psychiatric disorders. We implement net benefit regression to illustrate its strengths and limitations.

Results: Net benefit regression offers a simple option for cost-effectiveness analyses of person-level data. By placing economic evaluation in a regression framework, regression-based techniques can facilitate the analysis and provide simple solutions to commonly encountered challenges.

Discussion: Using net benefit regression obviates the need to remember whether it is C/E or C/E that is of interest. The coefficient on the treatment indicator variable in a net benefit regression is the INB, and the value of WTP that yields a coefficient estimate of zero is the ICER. Net benefit regression can accommodate more ambitious

analytical strategies with more advanced regression techniques (eg, using regression diagnostics to explore model assumptions, employing interaction terms to generate hypotheses about employees for whom an intervention is especially cost-(in)effective and/or using propensity scores when data are observational). In the case study presented in this article, we were able to adjust our CEA for covariates using multiple linear regression. Plotting our results on an incremental net benefit by WTP curve illustrated our estimate of cost-effectiveness and the associated uncertainty. The graph allows the results to be customized to a variety of settings because the results reflect the unknown WTP's impact on conclusions about cost-effectiveness.

Implications: Economic evaluations of person-level data (eg, from a clinical trial) should use net benefit regression to facilitate analysis and enhance results.

Source of Funding: None declared.

The Extent and Predictors of Clinical Inertia in Medication Treatment of Bipolar Disorder

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Abstract

Background: Clinical inertia has been defined as a failure of health care providers to initiate or intensify therapy when indicated. This phenomenon has already been documented for treatment of various chronic diseases, including hypertension, depression and diabetes. However, clinical inertia has not yet been examined for bipolar disorder, a chronic disorder whose pharmacological treatment often involves medications from multiple classes.

Study Aims: Our primary objective is to identify the extent of clinical inertia in the treatment of bipolar disorder. We also aim to ascertain which patient characteristics may be predictive of this treatment pattern.

Methods: Data are for 23,406 visits by 1,815 patients treated for Bipolar I Disorder through the STEP-BD practical clinical trial. During study visits, clinicians recorded data on patients' medication treatment; adverse effects, clinical mood state and other information, using a one-page assessment tool: the Clinical Monitoring Form. We identify visits at which a medication adjustment appears to be indicated, and also whether or not a medication adjustment did occur. Multivariate regression analyses are conducted to find which patient characteristics are predictive of whether adjustment occurs.

Results: 37% of visits showed at least 1 indication for adjustment. The most common indications were non-response to medication, side effects, and start of a new illness episode. Among visits with an indication for adjustment, no adjustment occurred 19% of the time, which is suggestive of clinical inertia. In multivariate models, presence of an indication for adjustment is a significant predictor of receiving adjustment. However current clinical status is a stronger predictor of receiving adjustment. Adjustment was also more likely for patients who were younger (15-25), female, white, college-educated, or receiving disability benefits. Study limitations include the cross-sectional design and use of observational data.

Conclusions: Many patients with bipolar disorder remain on the same medication regimen despite indications that the regimen is causing side effects or not improving the patient's condition. Although the problem appears less severe than for some other diseases, it still affects a substantial number of patients.

Implications for Future Research: Further research should investigate possible reasons for this treatment pattern, which could include inattention, miscommunication and clinician beliefs.

Implications for Health Policy: If further studies confirm presence of substantial clinical inertia for bipolar disorder, possible responses could include interventions to educate physicians or improve the information they receive on patients' condition.

Source of Funding: None declared.

Toward Global Health Equity: Ethical Leadership, Health Policy, and Addressing Social Determinants of Health

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Abstract

A recent report of the World Health Organization entitled *United States (U.S.) Health in International Perspective: Shorter Lives, Poorer Health* documented the alarming implications of poor health status among many individuals, families, and communities (Aaron, 2013). This landmark report helps to delineate from a global perspective, comparisons among seventeen peer countries relative to the issue of life expectancy, selected medical conditions, and health outcomes particularly concerning infant mortality and low birth weight, injuries and homicides, disability, adolescent pregnancy and sexually transmitted infections, HIV and AIDS, drug-related deaths, obesity and diabetes, heart disease and chronic lung disease. One notable and consistent finding suggested that individuals that are most negatively impacted, suffer the greatest, and highest at-risk for deleterious outcomes represent poor, underserved, and vulnerable communities inundated by individuals that live in poverty. These harsh realities warrant further examination and the critical need to determine the role of public health in the quest for global health equity. When extreme differences in health are significantly associated with social disadvantages, the differences can be labeled as health inequities; and in most cases these differences are (1) systematic and avoidable, (2) facilitated and exacerbated by circumstances in which people live, work, and contend with illness, and (3) may be intensified by political, economic, and/or social influences (WHO, 2008). It is imperative that public health professionals, researchers, clinicians and policy makers embrace lead roles to bridge the gap between the rich and the poor concerning health issues, by promoting health equity and setting guidelines for global health initiatives. In order to address the plight of health inequities, social injustice must be expanded to reach people on a larger scale which is more inclusive and less exclusive.

Our goal is to provide a research model for promoting ethical leadership for informing mental health policies in the U.S.; which may be applicable to international communities. Addressing the social determinants of health requires policy changes at local, national and international levels. Effective and ethical leadership is the key to success in the quest for global health equity. According to a first-ever study of U.S. medical schools in the area of social mission, Morehouse School of Medicine ranks #1 in the nation. In order to promote community health and ethical responsibility for future health care providers; we must not leave the emergence of leaders relative to disparities in health to chance alone. There are leadership capacities in all of us; and we must help to develop that capacity because leadership matters. Leaders must be good learners, continually learning more about themselves, those they lead, and the cause or missions for which they work.

Focused initiatives and cross-cultural collaborations will be achieved as we continue to transform the science of ethical decision-making and discovery in research, health promotion, and practice. U.S. based public health professionals, practitioners, research scientists, policymakers, community leaders, and individual consumers collectively have unique roles as thought leaders in the design, implementation, and evaluation of innovative strategies to promote global health equity.

Source of Funding: None declared.

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Adherence to Psychotropic and Medical Therapy among Patients with Severe Mental Illnesses: Being of Two Minds?

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Abstract

Background: Patients with severe mental illness (SMI) are at high risk of cardiovascular complications and premature mortality, but often have a history of poor adherence to therapy. Some clinicians could view poor adherence as a barrier to cardiovascular prevention. The drug adherence literature, however, suggests that adherence patterns can vary by indication. There is limited information on drug adherence patterns for psychotropic versus medical therapy among schizophrenia patients.

Aims: We examined the patterns of antipsychotic and statin drug treatment use and adherence among SMI patients newly initiating antipsychotic drug therapy.

Methods: Subjects were members of a prepaid integrated delivery system (IDS) between 2007-08. Eligible subjects had a diagnosis of schizophrenia (as determined by their Medicare Hierarchical Condition Category indicator or HCC=54), but did not have any antipsychotic drug use during the baseline year 2007. We examined the timing of the first pharmacy dispensation of an antipsychotic drug or of a statin drug, and classified the time that subjects were receiving therapy with an antipsychotic only or with both an antipsychotic and statin. We then estimated treatment adherence by calculating the proportion of days (PDC) that a patient had drug supply of either antipsychotic or statin drugs. We used logistic regression models to assess associations between adherence and insurance, physician, and patient factors.

Findings: There were 3,702 SMI subjects newly started on antipsychotic drug therapy in 2008, defined as having both a SMI diagnosis and no antipsychotic drug dispensed in 2007. The mean age was 46 years; 67% were female; and 31% were of non-white race/ethnicity. Overall, 73% had commercial insurance; 17% had Medicare only; 4.5% had Medicaid; and 5.5% had both Medicare and Medicaid (dual-eligible). The mean timing of the initial antipsychotic drug receipt was at 5.9 months in 2008. After receipt, the mean proportion of days in 2008 with any antipsychotic drug was 51%. Subjects age 25-34 vs. <25yo had lower odds of being adherent (e.g., OR=0.43, 95%CI:0.30-0.63), whereas subjects of White race (OR=1.28 vs. non-white, 95%CI:1.09-1.50) and dual-eligible status had greater odds of being adherent (OR=1.45 vs. commercial, 95%CI:1.06-1.97). Subsequently, 726 (19.6%) started statin drug therapy: mean month of initial drug receipt=7.9 and mean time lag=1.8 months between initial antipsychotic and initial statin receipt. Among subjects on both antipsychotic and statin therapy, the mean PDC was 55.3% for antipsychotic drugs and 81.2% for statin drugs. Younger subjects (e.g., OR=0.23 for <55 vs. 65+, 95%CI:0.30-0.63) and females (OR=0.67 vs. males, 95%CI:0.56-0.81) had lower odds of initiating statin therapy. Subjects of White race had greater odds of being adherent to their statin therapy (OR=1.42 vs. non-white, 95% CI: 1.00-2.02).

Conclusions: Patients with severe mental illnesses have poor adherence to their newly prescribed antipsychotic drug therapy. Few patients also are receiving statin drugs. Among those on both, adherence is substantially higher for statin therapy compared with antipsychotic therapy.

Implications: Clinicians should not be discouraged from initiating cardiovascular prevention therapy in patients with severe mental illnesses because of adherence concerns, including in

those who appear to be poorly adherent to their psychotropic therapy.

Source of Funding: R01MH090284, R01MH104560.

Whither and To Whom Must I Wander: Geographic Distribution of Mental Health Provider Supply and the Role of Non- Physician Providers

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Abstract

Background: Numerous studies have described a dearth of psychiatrists in areas of the United States. The federal government classifies such areas as Mental Health (MH) Professional Shortage Areas, i.e., having a psychiatrist-to-population ratio <1:30,000. Access may be limited further if psychiatrists do not accept insurance; however, few studies account for insurance acceptance when estimating provider supply. Other non-psychiatrist MH providers such as psychologists or advanced practice nurses also provide MH care, but little is known about their practice locations or the extent to which they provide care when few psychiatrists accept insurance.

Aims: We examine area-level estimates of the MH provider supply and the fraction accepting Medicare insurance. We then assess the share of Medicare MH claims made by non-psychiatrists as a function of the population rate of psychiatrists.

Methods: Using National Plan & Provider Enumeration System and Census data, we examined the numbers of psychiatrists per 30,000 residents per Hospital Referral Region (HRR). We used 2010 claims for a national 20% random sample of fee-for-service Medicare beneficiaries and identified all outpatient claims for a MH condition by provider type. We compared the number of providers who appeared to accept Medicare patients (i.e., those with ≥3 Medicare claims) with the total number of MH providers in each HRR. Finally, we assessed the association at the HRR-level between the proportion of total MH claims in 2011 that were for non-physician MH providers and the number of Medicare psychiatrists per 30,000 population, while adjusting for the number of MH providers in the HRR, and HRR traits such as population size, % dual-eligible, % using FQHC/RHC, % Black, % Hispanic, and standardized-per-capita spending.

Findings: In 2010, there was a mean of 4.2 total psychiatrists/30,000 residents per HRR, with one HRR having <1 psychiatrist/30,000 residents. In comparison, there was a mean of 1.5 psychiatrists with Medicare claims/30,000 residents (with 72 of 306 HRRs having a Medicare psychiatrist supply <1:30,000). The mean number of MH providers/30,000 residents increased to 4.3 after including non-psychiatrist providers (with only two HRRs having a MH provider supply <1:30,000). Among beneficiaries with MH claims, 22.5% had claims only with psychiatrists; 17.7% had claims with both psychiatrists and non-psychiatrists; and 59.8% had claims with only non-psychiatrists. After adjustment, there was a 9.5 percentage point (pp) reduction (95% CI: 7.5-11.4pp) in the proportion of MH claims for non-psychiatrist providers with each additional psychiatrist accepting Medicare insurance per 30,000 residents.

Conclusions: In many areas, few psychiatrists accept Medicare insurance though many of these areas do not have overall shortages in psychiatrists. Non-psychiatrist MH providers provide a larger proportion of MH care in areas with fewer psychiatrists per capita.

Implications: The majority of psychiatrists do not accept Medicare insurance resulting in numerous areas in which beneficiaries could

have difficulty accessing care. Non-psychiatrists appear to provide MH care in these areas, potentially without the involvement of psychiatrists. Data are needed on the quality of this care, and on the predictors of psychiatrist and non-psychiatrist location and acceptance of insurance.

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Physician Prescribing of Antipsychotics to Children and Adolescents

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Abstract

Background: Antipsychotic medication use among U.S. children has more than tripled over the past two decades despite the fact that many antipsychotics lack approval by the U.S. Food and Drug Administration for use in children. Thus, a large proportion of this use is “off-label.” Little is known about off-label antipsychotic prescribing for children, a topic of high significance because in addition to the dearth of efficacy evidence, there is evidence of serious risks associated with antipsychotic use in children.

Aims: To identify characteristics of physicians who prescribe antipsychotics for age groups without FDA-approved indications and examine the relationship between a physician’s child antipsychotic prescription volume and the share of antipsychotic prescriptions for clearly off-label indications.

Methods: We use monthly physician-level prescribing data from IMS Health’s Xponent™ database linked with the American Medical Association’s Masterfile data on physician characteristics (e.g., specialty, age, sex, region, training institution, practice setting) on all U.S. psychiatrists and a 5% random sample of family medicine physicians who wrote at least ten antipsychotic prescriptions per year from 2008-2011. We define a “clearly off-label” prescription as one with no FDA-approved indications for any disorder for that patient’s age range. Using hierarchical binomial regression modeling, we link the number of child antipsychotic prescriptions that are clearly off-label for each physician to physician characteristics, and estimate odds ratios. Graphical summaries of the relationships between the total number of child antipsychotic prescriptions a physician writes, and the number and share that are clearly off-label, overall and by specialty and child antipsychotic prescribing volume, are constructed.

Results: Among the 27,195 physicians with at least one child antipsychotic prescription, 65.6% wrote at least one clearly off-label child prescription. On average, younger physicians were more likely to prescribe antipsychotics for clearly off-label indications than older physicians (e.g., odds ratio[standard error]: OR=1.25[0.05] for =39 years relative to 60+ years), and females were less likely than males (OR=0.88[0.02]). Relative to all other psychiatrists, child/adolescent psychiatrists were slightly more likely (OR=1.07[0.03]) while family medicine physicians were much less likely (OR=0.42[0.03]) to prescribe antipsychotics off-label. Those practicing in group settings were more likely to prescribe off-label than solo practitioners (OR=1.15[0.03]). The average clearly off-label share of a physician’s child antipsychotic prescriptions is relatively low (e.g., 16%-31%, depending on specialty, for children age 0-9) and varied little based on child antipsychotic prescription volume or physician specialty.

Discussion: These results suggest that off-label child antipsychotic

prescribing is widespread and not concentrated among a small subset of child antipsychotic prescribers. Given the unfavorable risk/benefit profile of child antipsychotic use, it is important to encourage physicians to consider alternative treatments where possible. A variety of interventions have proven effective at influencing provider behavior, including prior authorization and step therapy requirements, financial incentives, and academic detailing, and these approaches should be considered for use in influencing child antipsychotic prescribing.

Implications: Understanding physician off-label antipsychotic prescribing to children could help public and private regulators, payers, patient advocacy groups, and policymakers target interventions to improve the quality, safety, and value of child mental health treatment.

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The Economic Burden of Common Mental Disorders to the Health Care Health System in Nigeria

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Abstract

Background: Psychiatric illness is a vital public health challenge that is under-recognized as a public burden, its toll is tragic. Depending on the type of psychiatric illness, the severity of the illness may vary from mild to severe and contribute to disability. Not only does psychiatric illness impact individuals but it also places a significant impact on families, communities and the health care system but the magnitude of the burden is unknown in Nigeria and in many Low and Middle in countries.

Aims of the Study: This study aims to fill the evidence gap and contribute to existing literature that may inform institutionally focused and national policy interventions needed to enhance the framework for the initiation and utilization of mental health services

Methods: The study is a cross sectional study to be carried out at the University of Nigeria Teaching Hospital (UNTH) and Federal Neuropsychiatric Hospital Enugu (FNHE). They are the two main tertiary health institutions that provide mental health services to residents in Enugu state, south-eastern Nigeria. The cost of illness analysis would be estimated from a societal perspective. Hence this would involve including all direct and indirect costs of the psychiatric disorders. Direct cost define the costs of resources used in treating identified illnesses, while indirect costs define the value of resources lost due to the mental disorders. Direct medical costs incurred in the process of treating psychiatric disorders will be calculated from the hospital associated costs, as well as patient perspective. Provider costs for both outpatient and inpatient treatments will be calculated from a standard costing procedure (ingredient approach combined with step-down methodology), based on a comprehensive cost accounting system for computing provider costs associated with both outpatient and inpatient visits. This will involve attributing costs to identified disorders based on diagnostic criteria.

Results and Conclusions: The study is in progress and abstract will be updated

Source of Funding: None declared.

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Determinants of Hospital Length of Stay for People with Serious Mental Illness in England

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Abstract

Background: Serious mental illness (SMI), which encompasses a set of chronic conditions such as schizophrenia, bipolar disorder and psychoses, accounts for a significant level of hospital resource use in the English NHS. SMI patients typically have much longer LOS than other patients. As mental health services in England move towards a prospective payment system to reimburse hospitals, an understanding of the key drivers of resource use is imperative.

Aims of the Study: We examine the key determinants of LOS in hospital for patients with a main diagnosis of SMI.

Methods: We examine admissions data from Hospital Episodes Statistics (HES) for England over the period 2006/07 to 2010/11. We consider patients with at least one unplanned admission a year, with a LOS of up to 180 days. We use a mixed-effects linear regression model that addresses the clustering of admissions within patients and we transform LOS using a logarithmic transformation. We searched the literature for key determinants of LOS for patients with SMI. We found 19 studies with LOS as the primary or secondary outcome. Based on the literature, we derived a range of variables that describe the medical and socioeconomic characteristics of the patient. These are age, gender, ethnicity, primary diagnosis, comorbidity, whether or not the patient has a carer, was detained, or has a psychiatric history. We also derived variables that describe the hospital stay: discharge type and year of admission. We controlled for local area characteristics such as the proportion of people claiming mental health benefits, and the quality of primary care. We modelled hospital fixed effects.

Results: The dataset included 98,993 individuals. The mean LOS was 42.3 days and the median 30 days. Longer LOS was associated with some primary diagnoses, older age and male gender. Formal detention significantly increased LOS, as did black and Asian ethnicity. People with an informal carer were likely to have longer LOS, whereas people with a history of psychiatric admission tended to have a shorter LOS. Unsurprisingly, patients who decided to self-discharge had a shorter LOS. Area deprivation did not explain LOS, but having a higher number of comorbidities was associated with longer LOS. No association was found between improved primary care quality and LOS.

Discussion and Limitations: Our results provide insight into resource use for SMI patients and despite some limitations, HES provides information on a wide range of variables related to patient attributes which enables us to move beyond current literature in this field.

Implications for Health Care Provision and Use: This research can provide hospitals with a better understanding of the implications of their case-mix under a future prospective reimbursement system.

Implications for Health Policies: Our analysis will help inform commissioners on the key drivers of resource use for SMI patients.

Implications for Further Research: The majority of SMI care takes place in primary care and community-based settings and inpatient care is usually reserved for crisis stabilisation. Further research should therefore examine detailed resource use of SMI patients across the full patient care pathway.

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Financial Incentives - The Role of Provider Payment Mechanisms in Relation to the Quality of Mental Health Care

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Abstract

Background: In modern welfare states health care is fragmented in terms of entitlement to care, its funding and organisation. Different sectors – primary/secondary, outpatient/inpatient, acute/chronic, mental/physical - are not well coordinated. In mental health care, different treatment philosophies, e.g. biological vs psychological, complicate the issue. When it comes to the integration of health with social care the situation becomes even more complicated. Policy objectives of deinstitutionalisation and promotion of community mental health care are often not met because financing mechanisms, including raising and pooling of funds, provider payment mechanisms and user contributions, and related incentives, are not well aligned to meet the needs of persons with mental disorders.

Aim of the study: To explore the role of incentives in mental health care financing mechanisms in eight different national mental health care systems in relation to the quality of mental health care.

Methods: Within the EU funded project “Research on Financing Systems Effect on the Quality of Mental Health Care - REFINEMENT” in eight European countries with different political, health and social care systems (Austria, England, Finland, France, Italy, Norway, Romania, Spain) three methodological approaches were used: (1) mapping the literature, (2) collecting specific examples of financial incentives, and (3) developing assessment tools (based on the principal agent model) for analysing financing mechanisms and pathways of care.

Results: The literature and the identified examples suggest that incentives in provider payment mechanisms which are focused on separate sectors of care are detrimental to the policy aim of coordinated and integrated care for persons with mental disorders. A telling example is the DRG system for inpatient care with its incentives to increase the number of admissions and its problems with accounting for comorbidity with physical disorders. A main product of the REFINEMENT project is a Decision Support Toolkit of which the tool for analysing financing and incentive mechanisms (FINCENTO) will be presented.

Discussion: Declared policy aims of improving the care of persons with mental disorders are often not met because financing mechanisms are not integrated and coordinated. In the present mental health care landscape service centred payment mechanisms with specific incentives may lead to distorted care pathways and reduced quality of care. However, given the large differences of health care systems between countries, no “one model fits all” approach to the financing of mental health care seems possible.

Implications for Health Care Provision and Use: Payment systems should be explored with incentives that promote coordinated care as opposed to fragmented care.

Implications for Health Policies: Health politicians should consider that not only the total amount of money spent matters for the quality of mental health care, but also the mechanisms how providers are paid and the inbuilt incentives and disincentives.

Implications for Further Research: Mental health care reform should be based on a solid analysis of the financing mechanisms and their intended and unintended incentives and disincentives. The REFINEMENT toolkit could be used in such research.

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Cost-effectiveness of a Collaborative Group Intervention for Patients with Medically Unexplained Symptoms

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Abstract

Background: Patients with medically unexplained symptoms (MUS) provide a substantial proportion of patients in primary care. These patients suffer from bodily complaints for which no organ pathology can be found despite intensive diagnostic efforts. MUS substantially reduce health related quality of life and cause relevant costs. In a randomized controlled trial (SpeziAll) a therapeutic approach combining educational elements for general practitioners with a collaborative group intervention (GP-CGI) for patients conducted by the patients’ general practitioners together with psychosomatic therapists was evaluated against a control group receiving only educational elements (GP) for the general practitioners.

Aims of the Study: The aim of our study was to estimate the incremental cost-effectiveness of GP-CGI compared to GP from a payer’s and a societal perspective.

Method: 35 GPs were randomly assigned to either the intervention or control group. In both groups, GPs received a general training in management of MUS-patient. In the intervention group, GPs additionally received a training in conducting a cognitive behavioural group intervention for MUS-patients. GPs contacted 569 patients eligible for the study, of whom 301 were finally included into the study. Patients in the intervention-group were offered 10 treatment sessions over 6 months and 2 booster sessions during 6 months follow up, whereas patients in the control-group received no specific intervention. Health care utilization, absenteeism and presenteeism were assessed via questionnaire and costs were calculated using 2007 prices. Quality adjusted life years (QALYs) were calculated using the SF-6D index. Missing values were imputed using multiple imputations by chained equations. QALYs and costs were analysed via multiple regression analysis. To analyse cost-effectiveness, we calculated the individual net-benefits of the patients, and used multiple regression analysis to control for confounders and to generate cost-effectiveness acceptability curves.

Results: Results of regression analysis showed that CGI-GP was associated with additional 0.02 QALYs ($p=0.008$) and with savings of -620 Euro (not significant) in direct cost, -475 Euro (not significant) in direct plus absenteeism costs and -1,363 Euro (not significant) in direct plus absenteeism and presenteeism costs. As uncontrolled point estimate GP-CGI was dominant. Net-benefit regression showed that the probability of GP-CGI to be cost-effective reaches the level of 95% given a willingness to pay of 35,901€/QALY (direct costs), 72,124€/QALY (direct and absenteeism costs) and 33,074€/QALY (direct, absenteeism and presenteeism costs). Stratification by baseline disease severity (DS) showed that CGI-GP was most cost-effective in patients starting treatment with severe DS (score of patient health questionnaire > 15).

Discussion and Limitations: GP-CGI had a high probability to be a cost-effective treatment for patients with medically unexplained symptoms, in particular from a payer’s perspective and for patients in severe health stages. A major limitation is a relative short follow up period of 6 months.

Implications for Health Care Provision: Striking differences

between severe DS and mild or moderate DS confirm the recommendations of MUS guidelines to follow stepped care models according to severity profiles. The finding that presenteeism crucially influences incremental cost-effectiveness calls for preventive strategies in occupational medicine – also in allegedly mild cases.

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Outcomes of Community Psychosocial Rehabilitation in Singapore

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Abstract

Aims and Hypothesis: To evaluate the cost effectiveness of home-based psycho-social rehabilitation services for adult patients referred to the Community Mental Health Team (CMHT) at Institute of Mental Health (IMH) in Singapore.

Background: Started in 2007, the CMHT programme provides home-based psycho-social rehabilitation services to patients diagnosed with Axis I conditions who are aged between 19 to 65 years old. Patients referred to the programme on a voluntary basis are streamed into two specialised services based on the severity of their clinical conditions and risk profile to achieve a more holistic and targeted care. Assertive Care Management (ACM) which entailed intensive visits with telephonic consults are offered to patients with an admission of at least 30 days or 3 admissions over 12 months. All other patients will be placed on Standard Care Management (SCM) with regular visits and telephonic support.

Methods: Patient outcomes are measured by the difference in Number of Admissions (NOA) and Length of Stay (LOS) for pre- and post-intervention over 12 months. Cost savings is calculated based on the bill size of reduced LOS consumed by patients for 1 year (post) from the date of enrollment as compared with the same period prior to enrollment (pre). The average hospital bill for inpatient stay (non-subsidised for Singaporean) is estimated at \$405 per day.

Results: As of September 2014, there are 2,644 patients who have completed at least 12 months of CMHT programme, out of which 813 (31%) received ACM and the remainder received SCM. Both groups achieved reduction in NOA and LOS post-intervention, with ACM patients achieving a higher reduction of 56% in NOA and 59% in LOS, as compared with SCM patients achieving 29% and 30% reduction in NOA and LOS respectively. A total of 16,056 hospital days were reduced, translating to savings of \$6.5 million for hospital bill per annum.

Conclusion: The average cost of CMHT programme per annum is \$2.79 million. With the programme achieving an outcome of reduction in patient's hospital bill of \$6.50 million per annum, it is concluded that the CMHT programme is cost effective, contributing to cost savings of \$3.71 million per annum. The impact of the CMHT services will have an important bearing on the future of mental health care delivery in Singapore.

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Innovation in Suicide Risk Identification: Increasing Precision, Improving Care Delivery and Redirecting Scarce Resources with the Columbia Suicide Severity Rating Scale

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Abstract

Suicide is one of society's greatest public health crises and the magnitude of its global disease burden is under-recognized—yet it is preventable. Suicide is the second leading cause of death in 10- to 24-year-olds in the US. 8-10% of US high school students report having attempted suicide in the past year. Fifty percent of people who die by suicide see their primary care provider within the month before they die, making doctor visits an ideal opportunity for prevention. Many adolescent attempters present to the ER for non-psychiatric reasons, so if we do not screen we will not find teens that need help. Evidence has shown that screening is highly effective in identifying at-risk adolescents, and screening in primary care contributes to more accurate diagnosis and better treatment of adolescent depression, and actually reduces rates of suicide. We should be asking about suicide like we monitor for blood pressure—but assessment of depression and suicide is typically not part of medical examinations.

The Columbia-Suicide Severity Rating Scale (C-SSRS) is the most evidence-supported and feasible solution for identification as it relates to preventing suicide. In a large NIMH intervention trial with adolescent suicide attempters, a traditional outcome measure of severity and change (Beck SSI) was not predictive of risk where the C-SSRS was. The C-SSRS increases the chances of predicting who is going to go on to make a future suicide attempt – one of the foremost priorities for prevention. This method of identification has become a central component of the international public health initiative to combat suicide risk. Many countries, states, and militaries have selected the C-SSRS due to its extensive evidence base and have moved towards system-wide implementation through policy or legislation. Due to its demonstrated ability to predict suicidal behavior and guidance for next steps it positively impacts service utilization through decreasing unnecessary interventions, redirecting scarce resources, and expediting care delivery to those at highest risk.

Source of Funding: None declared.

Return-To-Work Intervention Versus Care As Usual for Sick Listed Employees with Common Mental Disorders: Trial-Based Economic Evaluation Shows Promise

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Abstract

Background: Common mental disorders such as depression, anxiety and somatisation are associated with long-term sickness absence. Routine care, as offered by mental health services (MHS), has little

effect on sick leave duration. Therefore it is important to explicitly focus on return-to-work during treatment. For that purpose, a blended e-health module was developed and embedded in a collaborative occupational and mental health care model: the ECO intervention. ECO comprises two parts: one for the employee, aimed at changing cognitions of the employee regarding return-to-work, and another part supporting the occupational physician (OP) with a decision aid for advice regarding treatment, psychiatric consultation and referral options to MHS based on monitoring of the employee's progress during treatment.

Aims of the Study: To evaluate the ECO intervention compared to care as usual (CAU) in terms of cost-utility and cost-benefits (net-benefits) from the perspective of (i) patient/employee, (ii) health care system, and (iii) employer.

Methods cluster randomized controlled trial in two parallel groups, with randomisation at the level of OPs. A total of 220 sicklisted employees with CMD were enrolled and an economic evaluation was performed.

Results: Preliminary results show that both ECO and CAU improved health-related quality of life: in both conditions utilities (derived from the EuroQoL, EQ-5D-3L) increased from 0.60 to a much better 0.76, with improvements equally large in both conditions. However, ECO (costing €300 per recipient) was associated with a 64% likelihood to be dominant (less costly and associated with more health gains than CAU), with net-benefits of €1,518 (95% CI: 587~2,450) per patient per year from the health care perspective, €8,470 (95% CI: 3,397~13,544) from the employer's perspective, and net-benefits of €183 from the patient perspective. The latter is surrounded by uncertainty (95% CI:-203~569).

Discussion: A dedicated return-to-work intervention offers good value for money in a group of sick-listed employees with common mental disorders. Limitations are that the study suffered from drop-out and our intention-to-treat analyses relied on imputation, but different imputation strategies produced very similar results, which attests to the robustness of our findings.

Implications for Health Care Provision: It is recommended that mental health services offer dedicated and integrated return-to-work interventions for employees on sick leave, preferably in close collaboration with OPs.

Implications for Health Policies: In the current economic climate it is important that mental health services make an effort to become economically more relevant. Offering interventions that have a high return-on-investment and can be regarded as good business propositions for employers are key.

Implications for Research: In the same vein, health economic evaluation should perhaps be more geared toward (societal) cost-benefit analyses to become more politically relevant and informative.

Source of Funding: None declared.

An Analysis of Mental Health Program Funding for Child and Youth in the Canadian Yukon Territory

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Abstract

As one element in the development of a comprehensive Child and Youth Mental Health and Addictions Framework for the Yukon, we investigated the financial distributions across departments within

Yukon's Department of Health and Social Services (HSS) and associated agencies that offer services to young people with mental disorders. Included in this investigation was both quantitative and qualitative research. We compared these findings with other jurisdictions or similar therapeutic areas where possible. The intent was to understand where current funding strategies in the Yukon might differ from other jurisdictions and to determine whether opportunities exist to improve the use of funds in an effort to reduce or eliminate inefficiencies or inequities in the system.

We obtained aggregated data related to human resources, training, capital, facility maintenance, and medications for a variety of services related to child and youth mental health. Data was provided from: Mental Health Early Psychosis Intervention program, Residential youth treatment, Child Development Centre, a community agency offering mental health counselling, Child assessment and treatment, Alcohol and Drug Services, Youth Counseling, and Insured Health Services for Clinical staff for the April 2012-March 2013 financial period. Annual budgets varied from tens of thousands to millions of dollars for these services. The most notable departure from other jurisdictions was that very few funds were earmarked for health professional training when compared to the limited information we found in the literature. Published research in the US suggests that for "Child mental health services" most organizations provide a formal clinical training program, and most allow staff to attend continuing education unit (CEU) training during work hours, with reimbursement. Nearly all organizations also offered formal clinical training and financially supported CEU training.

Given that no new money exists within the ministry budgets, our qualitative interviews suggest that the best opportunities for expanded training funds would be from "out-of-province" expenses (albeit rather limited in nature), or from travel budgets for clinical staff. In both cases these are not large funding budgets so there may be a need to find monies from other budgets. One possible strategy would include an application for temporary grants (Territorial or Federal) invested in training. One limitation of this investigation is that we do not have any specific details on the services provided within these current training budgets in the Yukon. Although our qualitative interviews within the Yukon suggest that the small amounts allocated for training would not allow staff to attend CEU training on a frequent and regular basis. We also acknowledge that this is an investigation of one jurisdiction over one year, so its generalizability to other settings is limited. One possible implication of this investigation is that a mental health competency development strategy for all health and human service workers should be a core element of a proposed framework going forward. Assuming the implementation of this framework results in appropriate training investments a more efficient use of current services should follow. Hopefully these savings could more than offset the expanded training budget in future years.

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Availability and Efficiency of Consumer Choice in State Segment of Psychiatric Services

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Abstract

Introduction: Consumer choice at the market of medical services includes 3 components: demand of choice (which is growing since 1990), availability of choice and efficiency of choice.

Aim: To describe availability and efficiency of choice and their factors in state segment of psychiatric services.

Material: 289 inpatients of Moscow psychiatric hospital, suffering from depressive and neurotic disorders.

Method: Face-to-face interview on pre-hospital routing.

Results: Only 25% of inpatients were assessed with psychiatrist, which is implicit evidence of low availability of psychiatric help in outpatient chain. Outpatient treatment was proposed only 72% of outpatients which contacted non-psychiatric doctors and 64% of outpatients which contacted psychiatrists. Outpatients which were not proposed treatment at outpatient chain were directed to inpatient psychiatric hospital. Among patients who contacted psychiatrists and non-psychiatrist high percentage (46% and 38% respectively) were motivated not to treatment but to get and appointment card for hospitalization and most of them (74% and 85% respectively) were given such an appointment card not been proposed treatment. This is an indicator of inefficient choice because of violation of natural stages of treatment. This phenomenon is based on non-performance of agent functions and gate-keeping function by doctors at outpatient chain. Only 14% of patients when receiving appointment card for hospitalization were proposed the variants of the hospital therefore the consumption choice is absent. Finally 91% of patients were given only superficial information on the hospital, which causes the persistence of information asymmetry.

Conclusion: Violation of availability of choice and signs of inefficient choice at state segment of psychiatric services were detected.

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Trends in Psychotropic Drugs Utilisation and its Costs for the NHS in Portugal

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Abstract

Background: Psychotropic drugs are among the most widely used and prescribed medications, presenting an increasing trend overtime in various countries. Nevertheless, there are risks associated to its misuse/abuse.

Aims of the Study: This paper aims to analyse the trends in utilisation of all major classes of psychotropic drugs in Portugal between 2003 and 2012. In particular, a detailed analysis on benzodiazepines and antidepressants is performed and an international comparison is made. We present as well an analysis on the reimbursement costs for the National Health Service (NHS) of these drugs based on sell-out of psychotropic drugs from 2009 to 2013.

Method: Data from IMS Health concerning psychotropic drugs dispensed to community pharmacies is described and analysed using a linear trend regression model with a structural break. To perform an international comparison, we used the OECD dataset. Data from the Regional Health Administration (ARSLVT) regarding the reimbursement costs for the NHS is examined.

Results: Portugal has the highest utilisation of antidepressants and anxiolytics, hypnotics and sedatives among several European countries. Results show that Portugal experienced an increasing utilisation trend until 2009 but from 2010 onwards the utilisation decreased in all pharmacological subclasses. This trend shows not to vary when controlled for geographic location. Particularly when we

focused our analysis in the three urban areas, where there is a higher concentration of psychiatrists, their utilisation growth trend showed not to be different than the one observed in the rest of the country. Reimbursement costs for the NHS present an increasing trend until 2010. From 2011 onwards these costs decreased in all pharmacological subclasses.

Discussion: The extremely high utilisation of anxiolytics, hypnotics and sedatives, specifically of benzodiazepines, was the most prominent result of our study. The utilisation of these drugs is substantially higher in Portugal, even when compared with other European countries where there is a similar prevalence of anxiety and depressive disorders. This is a worrying fact, considering benzodiazepine's secondary effects and consequences of chronic misuse. Regarding the access to specialised care, although it is verified a higher utilisation where there were more psychiatrists, we would expect a greater contrast and influence of this variable in the utilisation of psychotropic drugs. Reimbursement costs for NHS have been decreasing since 2010 due to a governmental regulation for price reduction of medicines and also because the reduction in utilisation. It should be highlighted that IMS and ARSLVT datasets exclude drugs dispensed to/from hospital pharmacies and thus we may underestimate the use of total psychotropic drugs.

Implications for Health Policy: Benzodiazepines misuse is a serious public health risk that is not being taken into account in Portugal. It can be instrumental not to reimburse universally these medications, reduce pills per package for some drugs and monitor both prescription and sell-out without prescription. A policy focused in reducing benzodiazepines utilisation only by ending with its reimbursement would represent for 2013 a saving for the NHS of approximately €6M. This saving could be directly managed for decreasing treatment gap in anxious and depressive disorders, such as primary care doctors training and supervision of practice on mental disorders cases.

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Efficacy and Cost-Effectiveness of Computerised Cognitive Therapy for Depression in Primary Care: A Controlled Randomized Study

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Abstract

Background: Major depression will become the second most important cause of disability in 2020. Computerised cognitive-behaviour therapy could be an efficacious and cost-effective option.

Aim: To develop a computerized cognitive-behaviour therapy for depression and assess its efficacy.

Methods: The study is made up of 3 phases:

(i) Development of a computerised cognitive-behaviour therapy for depression tailored to our environment.

(ii) Multicenter controlled, randomized study: A sample (N=300 patients) with mild/moderate depression recruited in primary care. They should have internet availability at home, not receive any previous psychological treatment, and not suffer from any other severe somatic or psychological disorder. They will be allocated to one of 2 treatments: a) Computerised cognitive-behaviour therapy or b) Treatment as usual by his/her general practitioner (TAU).

Patients will be diagnosed with MINI psychiatric interview. Main outcome variable will be change in Beck Depression Inventory s. It

will be also other outcome measures of quality of life (EuroQol 5D), SF-12 Health Survey (functional status) and Client Service Receipt Inventory (consume of health and social services). Patients will be assessed at baseline, 3, 6 and 12 months. An intention to treat and a per protocol analysis will be performed. Costs are defined from the societal perspective and include: (i) Intervention cost, (ii) cost related to health care uptake, (iii) cost of pharmacological treatment, and (iv) cost stemming from production losses due to lost work days. Cost would be calculated by Euros for the reference year of 2010. The 3 cost categories distinguished will be: direct medical cost, direct nonmedical cost and indirect nonmedical cost.

Source of Funding: None declared.

Investigating Variations in Costs and Performance of English Mental Health Providers.

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Abstract

Background: International evidence suggests that prospective payment based on diagnosis performs sub-optimally in mental health care. Many countries are experimenting with payment systems that incentivise both cost efficiency and quality improvement. In England, funding for mental health care services is moving to a prospective payment system based on patient needs, not diagnosis. The units of payment under the new system are 21 care clusters. Patients are allocated to a cluster by clinicians, and each cluster has a maximum review period.

Aims of the Study: Under the new payment system, it is intended that future tariffs will be based on the national weighted average cost of admitted, non-admitted care and an initial assessment. This will provide an incentive for providers to increase efficiency. The aim of this research is to investigate variations in costs across providers to ascertain what factors are associated with higher or lower costs. The residual variation in costs is compared across providers to provide insights into which providers may gain or lose under the new financial regime.

Methods: The main data source is the Mental Health Minimum Data Set (MHMDS) for England for the years 2011/12 and 2012/13. Our unit of observation is the period of time spent in a care cluster and costs associated with the cluster review period are calculated from NHS Reference Cost data. Costs are modelled using a multi-level generalised linear model. The residual variation in costs at the provider level is quantified using Empirical Bayes estimates and comparative standard errors used to rank and compare providers.

Results: There are wide variations in costs across providers. Preliminary findings suggest a number of variables are associated with higher costs including older age, female gender, marriage/civil partner, detention under the Mental Health Act, and having care co-ordinated under the Care Programme Approach. Provider variables are not found to be significantly associated with costs. After controlling for patient- and provider-level variables, residual variation in costs remains at the provider level.

Discussion and Limitations: The wide variation in costs suggests that some providers may have to increase efficiency in order to remain financially viable when a national tariff is introduced to mental health care. The main limitation of the study is the inability to take account of diagnosis and co-morbidities due to poor coding in the MHMDS.

Implications for Health Care Provision and Use: We find that some mental health care providers in England are associated with higher costs of provision after controlling for characteristics of ser-

vice users. These higher costs may be associated with higher quality care or with inefficient provision of care.

Implications for Health Policies: The introduction of a national tariff is likely to provide a strong incentive to reduce costs. Therefore, the new payment system in England may encourage care provision in cost-effective community settings and discourage unnecessary care in more costly inpatient settings.

Implications for Further Research: Future research should consider the relationship between costs and quality to ascertain whether reducing costs may potentially negatively impact patient outcomes.

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Competency Development to Meet Rural and Remote Mental Health Needs: A Case Study of Child and Youth Mental Health Policy in Yukon, Canada

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Abstract

Background: Meeting mental health needs of children and youth can be a particular challenge in rural/remote areas. Difficulties include limited funding, service delivery across large distances, attracting and retaining health care providers, and specialty access. Yukon has a population of approximately 38,000, residing in an area of 482,000 km² (about the size of Spain), complex federal, territorial and First Nations governance structures, social and cultural considerations and significant youth mental health needs.

Aims of the Study: In 2013, the Yukon Government partnered with researchers to develop a child and youth mental health and addictions framework for the territory that would be tailored to its unique context and fiscal constraints.

Methods: Community-based participatory policy research was carried out in partnership with a Working Group representing the Yukon government, Kwanlin Dun First Nation and the Yukon Council of First Nations. Data was gathered through literature review, Working Group meetings, key informant and focus group interviews with almost 100 stakeholders (young people, families, service providers and policy advisors), and a clinician workshop. Experiences of jurisdictions that face similar challenges were gathered through document analysis and key informant interviews.

Results: The framework features child and youth mental health competency development for the entire health and human service workforce to leverage the capacity of a traditionally siloed 'Mental Health Service'. If implemented, a cascading model of service delivery would enable promotion, prevention and provision of basic mental health care in each community by existing health and human service workers that have *basic* mental health training. These workers would identify and make referrals to more specialized services. Primary care workers in regional hubs and Whitehorse would receive *advanced* training. Primary care physicians, psychologists and psychiatrists in Whitehorse would receive *enhanced* training. Existing telehealth capacity, an electronic data set and a website that offers mental health resources would be used to provide support to community and regional providers for complex cases through rapid access to specialists and referral when required.

Discussion: The framework would allow children and youth to receive care in their home communities to the greatest extent possi-

ble within the Yukon context. It establishes a rational and efficient means of ensuring that children and youth with more complex needs are able to access care from the most appropriate specialized services and providers. The participatory research process enabled buy-in of key stakeholders. The research is limited in that it is applied to a single case, but draws on lessons from other jurisdictions.

Implications for Health Care Provision and Use: Competency development across a broad array of service providers may be a core strategy to improve service delivery to children and youth in rural/remote communities.

Implications for Health Policies: This approach can transform traditionally siloed mental health service delivery and expand services across the full continuum from promotion through ongoing care.

Implications for Future Research: The framework stresses the importance of best evidence and ongoing evaluation. Future research is needed to identify a parsimonious set of validated outcome indicators to enable rigorous ongoing evaluation.

Source of Funding: None declared.

Comparative Cost-effectiveness of Two Interventions to Promote Work Functioning by Targeting Mental Health Complaints among Nurses: Pragmatic Cluster Randomised Trial

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Abstract

Background: The specific job demands of working in a hospital may place nurses at elevated risk for developing distress, anxiety and depression. Screening followed by referral to early interventions may reduce the incidence of these health problems and promote work functioning.

Objective: To evaluate the comparative cost-effectiveness and cost-benefit of two strategies to promote work functioning among nurses by reducing symptoms of mental health complaints. Three conditions were compared: the control condition consisted of online screening for mental health problems without feedback about the screening results. The occupational physician condition consisted of screening, feedback and referral to the occupational physician for screen-positive nurses. The third condition included screening, feedback, and referral to e-mental health.

Design: The study was designed as an economic evaluation alongside a pragmatic cluster randomised controlled trial with randomisation at hospital-ward level. Next to that, a cost-benefit analysis was conducted to evaluate the balance between the costs of a preventive intervention among nurses at elevated risk of mental health complaints and the cost offsets stemming from improved productivity. The study included 617 nurses in one academic medical centre in the Netherlands.

Methods: Treatment response was defined as an improvement on the Nurses Work Functioning Questionnaire of at least 40% between baseline and follow-up. Total per-participant costs encompassed

intervention costs, direct medical and non-medical costs, and indirect costs stemming from lost productivity due to absenteeism and presenteeism. All costs were indexed for the year 2011.

Results: At 6 months follow-up, significant improvement in work functioning occurred in 20%, 24% and 16% of the participating nurses in the control condition, the occupational physician condition and the e-mental health condition, respectively. In these conditions the total average annualised costs were €1,752, €1,266 and €1,375 per nurse. The median incremental cost-effectiveness ratio for the occupational physician condition versus the control condition was dominant, suggesting cost savings of €5,049 per treatment responder. The incremental cost-effectiveness ratio for the e-mental health condition versus the control condition was estimated at €4,054 (added costs) per treatment responder. Sensitivity analyses attested to the robustness of these findings. For the cost-benefit analysis subtracting intervention costs from the cost offsets due to reduced absenteeism and presenteeism resulted in net-savings of €244 per nurse when only absenteeism is regarded, and €651 when presenteeism is also taken into account. This corresponds with a return-on-investment of €5 up to €11 for every euro invested.

Conclusions: The occupational physician condition resulted in greater treatment responses for less costs relative to the control condition and can therefore be recommended. The e-mental health condition produced less treatment response than the control condition and cannot be recommended as an intervention to improve work functioning among nurses. The cost-benefit analysis reveals that within half a year, the costs of offering the preventive intervention were more than recouped. Offering the preventive intervention represents a favourable business case as seen from the employer's perspective.

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Impact of Pain and Remission on the Functioning of Patients with Depression

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Abstract

Background: Current research reveals that painful physical symptoms are reported by up to 76% of all patients with depression.¹ Depression and pain seem to exert a direct influence on the impairment of daily functioning.²

Aims: The present study analyses functioning during the course of treatment of an episode of major depressive disorder (MDD), focusing on the influence of pain on functioning.

Methods: Data in this *post hoc* analysis were taken from a 6-month prospective, non-interventional, observational study that involved a total of 1,549 MDD patients without sexual dysfunction at baseline in twelve countries worldwide. At inclusion patients were initiating, or switching, antidepressant treatment within the normal course of care. Patients were considered to have clinically relevant pain symptoms (Painful Physical Symptoms, PPS+) if they had a mean rating of 2 or more in the pain-related items of the Somatic Symptom Inventory. Functioning was measured with the Sheehan Disability Scale (SDS), with higher ratings representing higher disability / lower functioning. Severity of depression was assessed with the Quick Inventory of Depressive Symptomatology-Self Report 16 (QIDS).

Remission was defined as a QIDS rating of 5 or less. Patients were classified as having no pain, persistent pain (pain at baseline and follow-up) and remitted pain (pain at baseline but not at endpoint). Only patients starting treatment with Duloxetine or a selective serotonin reuptake inhibitor (SSRI) were included. A mixed model with repeated measures was fitted to analyze the relationship between pain and functioning, adjusting for baseline severity and other factors.

Results: A total of 1,332 patients were evaluated at baseline, of which 1060 (80%) had pain data at 6 months. About half of the patients (514, 48.5%) had no pain, 493 (46.5%) had remitted pain and 53 (5%) had persistent pain. Eighty percent of patients achieved remission at study endpoint. Patients with no pain had a lower severity of depression (QIDS mean scores (sd) were 13.5 (4.8); 15.3 (4.5), 13.4 (5.2) for no pain, remitted pain and persistent pain, respectively; $p < 0.0001$) and higher functioning (SDS total mean scores (sd) were 16.9 (6.4); 18.4 (6.2), 18.1 (7.6) for no pain, remitted pain and persistent pain, respectively; $p < 0.001$) at baseline. At 24 weeks, patients with persistent pain had lower functioning (SDS total mean score (sd) 3.2 (4.3); 3.1 (4.3), 10.8 (6.7) for no pain, remitted pain and persistent pain, respectively; $p < 0.001$). The regression model, which included both course of pain and remission, confirmed that clinical remission was associated with higher functioning at endpoint (estimated difference in SDS total score 1.9; 95% CI 1.4, 2.4) and that patients with persistent pain had lower functioning at endpoint when compared with the no pain group (estimated difference in SDS total score 4.9 (95% CI 3.7; 6.1) points in SDS).

Discussion: When interpreting the present results we need to take into account that the study was observational and that only patients without sexual dysfunction at baseline were included.

Conclusions: Patients presenting with pain symptoms were more severe in terms of depression and had lower functioning at baseline. At 6 months, pain persistence was associated to significant lower functioning. Clinical remission was associated with better functioning.

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Functioning in Patients with Major Depression Receiving Treatment with SSRIs or Duloxetine

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Abstract

Background: Depression, and also pain, seem to exert a direct influence on the impairment of daily functioning.² Indirect costs of

depression, those arising from lower functioning, clearly drive treatment costs in Western countries³.

Aims: The present study analyses the course of impaired functioning during the treatment of patients with major depressive disorder (MDD) and compares the outcomes of patients treated with SSRIs and duloxetine.

Methods: Data in this *post hoc* analysis were taken from a 6-month prospective, non-interventional, observational study that involved a total of 1,549 MDD patients without sexual dysfunction at baseline in twelve countries worldwide. At the moment of inclusion patients were initiating, or switching to, any available SSRI or SNRI antidepressant within the normal course of care. Patients were considered to have clinically relevant pain symptoms (Painful Physical Symptoms, PPS+) if they had a mean rating of 2 or more on the pain-related items of the Somatic Symptom Inventory. Functioning was measured with the Sheehan Disability Scale (SDS), with higher ratings representing higher disability/lower functioning. Severity of depression was assessed with the Quick Inventory of Depressive Symptomatology-Self Report 16 (QIDS-SR16). A mixed model with repeated measures was fitted to analyze the relationship between treatment and functioning, adjusting for the presence of other factors. Only patients starting treatment with Duloxetine or an SSRI were included in the analyses.

Results: A total of 1,332 patients were evaluated at baseline, of which 1048 (79%) were evaluated at six months. Regarding antidepressant treatment, 776 (58%) of the patients started treatment with an SSRI and 556 (42%) with Duloxetine. At baseline, patients starting Duloxetine had more painful physical symptoms (59% vs 47% were PPS+, $p < 0.0001$) but similar depression severity (QIDS-SR16 14.2 vs 14.5, ns). Functioning (SDS total score) at baseline was similar between the two treatments (17.5 vs 17.6, $p > 0.5$). At six months, patients treated with Duloxetine showed better functioning (SDS 2.8 vs 4.2, $p < 0.0001$). In PPS+ patients the difference at 6 months between the two treatments was much larger (2.7 vs 5.1, $p < 0.0001$) when compared to the difference in PPS- patients (3.0 vs 3.5, $p < 0.05$). In both cases the difference was statistically significant. The regression model showed that duloxetine treatment was associated with better functioning than SSRI treatment (difference -1.61, 95% CI -2.13, -1.07). The difference was mostly driven in PPS+ patients. In PPS+ patients the difference was -2.18 (95% CI -2.95, -1.42) and in PPS- -0.85 (95% CI -1.57, -0.14).

Discussion: When interpreting the present results we need to take into account that the study was observational and that only patients without sexual dysfunction at baseline were included.

Conclusions: Patients presenting with a major depressive disorder treated with duloxetine appeared to have higher functioning at six months compared to patients treated with SSRIs. The difference was mostly driven by patients with painful physical symptoms at baseline.

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Care Fragmentation and Design of a Randomized Clinical Trial to Reduce Cardiovascular Complications and Enhance Care within Mental Health Clinics

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Abstract

Background: Patients with severe mental illness (SMI) die younger than persons in the general population. Much of the excess mortality for SMI patients is attributable to cardiovascular disease and is exacerbated by treatment with second-generation antipsychotics (2GAs). Although the cardiovascular risks are well-known, and safe, efficacious therapy exists, few SMI patients receive routine monitoring or therapy with cardiovascular prevention drugs. Care delivery fragmentation and poor patient adherence are central problems to reducing cardiovascular risks for patients with SMI.

Aims: We are conducting a multi-site, open-label, randomized controlled trial comparing an initial treatment strategy of free, fixed-doses of two generic, cardiovascular prevention drugs (statins and angiotensin drugs) delivered within mental health clinics versus usual treatment.

Methods: The study will include 600 adult patients (18+ years old; 300 per arm) with schizophrenia, schizoaffective disorder, or bipolar disorder with psychotic features who are receiving 2GAs within mental health clinics in the Boston area. We have three aims: (i) to compare the proportions of subjects in each arm who are receiving cardiovascular drug treatment and are adherent to therapy during 12-months of follow-up; (ii) to compare changes in composite (e.g., Framingham scores) and individual (e.g., lipid levels) cardiovascular risk factor levels using an intent-to-treat (ITT) approach; and (iii) to compare risk factor levels, accounting for variation in adherence over time, using causal inference techniques to estimate the per-protocol effect of the intervention.

Findings: We will describe the study design protocol, e.g., advance practice nurses prescribing standardized regimens, and will present preliminary data demonstrating the baseline levels of cardiovascular monitoring and prevention, fragmentation of care between psychiatry and primary care, and levels of adherence. For example, in preliminary data we found that among 767 subjects newly prescribed a 2GA drug, only 18.6% had a baseline LDL measurement. Among those with measurements, 30.0% had baseline LDL>130mg/dL and 39.1% with 2+ measurements had their last LDL>130mg/dL. Similarly, only 4.7% of new 2GA users had a baseline A1c measurement: among those with measurements, 22.2% had baseline values>5.7% and 11.1% with 2+ measurements had their last A1c>5.7%. In other preliminary data on 961 prevalent 2GA drug users, 42.1% had a prior year LDL measurement. Among those with measurements, 29.9% had baseline LDL>130mg/dL and 27.9% with 2+ measurements had their last LDL>130mg/dL. Similarly, 14.1% had a baseline A1c measurement: among those with measurements, 31.9% had baseline values>5.7% and 50.8% with 2+ measurements had their last A1c>5.7%. We also will discuss the drug costs required for the intervention and potential scalability issues with our approach.

Conclusions: Many patients with SMI are at high risk for cardiovascular complications but most do not receive routine monitoring. An initial treatment strategy using fixed doses of prevention drugs provided within mental health clinics could both streamline care and reduce cardiovascular risks.

Implications: Innovative strategies are needed for reducing cardiovascular risks in SMI patients. This trial describes a potential strategy for risk reduction that addresses both fragmentation and adherence issues.

Source of Funding: None declared.

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Cost-effectiveness of IMPACT: a Health Promotion Intervention for People with Established Psychotic Illnesses

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Abstract

Background: The physical health of people with severe mental illness is very poor, resulting in markedly increased mortality rates. Regular cannabis use increases the risk of schizophrenia and ongoing use leads to more relapses, poor compliance, and longer duration of illness. There are thus a range of modifiable risk factors that could be addressed in this group to improve their long term health outcomes.

Aims of the Study: To evaluate the cost-effectiveness of IMPACT, a manualised, health promotion intervention tailored to the needs of the individual, for promoting mental and physical health and reducing substance use among people with established psychotic illnesses.

Methods: Five-centre two-arm cluster randomised trial comparing IMPACT plus usual care with usual care alone at 12 and 15 months after randomisation; care coordinators were the unit of randomisation. The economic evaluation linked costs from health/social care and societal perspectives with Short-Form-36 (SF-36) physical and mental component scores and quality-adjusted life years (QALYs) estimated from the SF-36 and EQ-5D-3L.

Results: 450 community-dwelling individuals were recruited. On average, the IMPACT intervention cost an additional £312 per person. At 15 months, there were no differences between the trial arms in mean total costs from either perspective, the two SF-36 outcomes or in QALY gains estimated from the SF-36 and EQ-5D-3L. Cost-effectiveness acceptability curves suggested that the probability that the IMPACT intervention is cost-effective is low. Findings from ongoing sensitivity analyses will also be reported.

Discussion: A health promotion intervention targeting one or more health behaviours from a predefined list, integrated into usual care, was not effective or cost-effective in this evaluation. Many contextual factors affected the implementation of IMPACT into routine care and a high proportion of study participants did not receive the intervention in its defined form.

Implications for Health Care Provision and Use: There is evidence of the effectiveness of add-on interventions targeting specific health problems in similar patient groups. Therefore, IMPACT's approach of addressing multiple modifiable cardiometabolic risk factors in this group in a comprehensive and integrated manner may be more difficult to implement successfully into routine care.

Implications for Health Policies: It is essential to consider contextual information when interpreting evidence generated from trials of complex interventions, especially when they also involve complex populations.

Implications for Further Research: Economic evaluation of complex interventions remains a challenge. Process evaluations which seek to explain findings from trials of complex interventions should incorporate lines of enquiry that aid the interpretation of both effectiveness and cost-effectiveness evidence.

Source of Funding: None declared.

Can Mental Health (Finally) Cross the Quality Chasm? Recent National and International Developments

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Abstract

Over the past decade, numerous studies across the globe have documented significant quality problems in general health care, as well as in mental and substance use care. More than a decade has passed since the landmark Institute of Medicine (IOM) series *To Err Is Human: Building a Safer Health System* and *Crossing the Quality Chasm: A New Health System for the 21st Century* started a national dialogue in the US on how to best achieve high quality health care that is safe, effective, efficient, personalized, timely, and equitable.

The passage of the Affordable Care Act (ACA) in the US introduced a wide array of provisions and mechanisms designed to improve access to quality mental health care, foster the redesign of the delivery and payment system (including the mental health and substance use system), improve quality measurement and accountability, and encourage new research and demonstration studies to increase the effectiveness of medical interventions.

Internationally, there have been increased efforts in many countries to develop and implement mental health indicator schemes to measure and monitor the quality of mental health care at the national and sub-national level. At the same time, there is growing interest among mental health leaders in many countries in learning from each other, sharing experiences and exchanging information and knowledge on quality measurement tools and approaches (e.g., IIMHL initiative on measuring the Quality of Mental Health Care). Despite these increased national and international efforts, the quality of mental health and substance use care still faces major challenges. Based on the above, the presentation would in particular

- Discuss the need for quality improvement through evidence based medicine.
- Describe and discuss the barriers to mental health quality measurement, and identify strategies for developing and using quality measures across stakeholder groups
 - Describe approaches to quality measurement in 2 key priority areas: psychosocial interventions and health/mental health integration
- Describe recent examples of how quality measures have been implemented in pay for reporting and pay for performance (value-based purchasing) programs in the U.S.
- Provide an update on international perspectives on quality measurement efforts in mental health care with particular reference to the IIMHL Clinical leads project.

Source of Funding: None declared.

Design of a Prospective Payment System for Inpatient Psychiatric Care in Switzerland

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Abstract

Background: Inpatient psychiatric care in Switzerland is currently

reimbursed by uniform per-diem rates. The new Health Insurance Act mandates the introduction of a national tariff system that reflects differences in patient resource use and introduces per-case reimbursements. In this study we developed a prospective payment system (PPS) with a patient classification system and a mixed tariff structure including per-case payments and per-diem rates.

Data: Primary data on patient characteristics, cost per episode and daily time spent by medical staff were collected in a survey of 9'888 patients from 17 inpatient psychiatric facilities in 2013, two of which were facilities specialized in disorders related to drug use. Patient characteristics include the main psychiatric diagnosis (ICD-10) and a weekly assessment of the severity of illness with the Health of Nations Outcome Scales questionnaire (HoNOS) covering dimensions such as aggressive behavior and the independence in activities of daily living.

Methods: Predictors of total cost per episode were examined with a multivariate linear regression model. Explanatory variables included main psychiatric diagnosis, HoNOS scores, socio-demographic characteristics, type of insurance plan, compulsory hospitalization and hospital fixed effects. Different mixed tariff structures with (staggered) per-case payments and per-diem rates were evaluated. Per-case payments of varying weight were evaluated and per-diem rates were allowed to vary over length of stay. Goodness-of-fit was measured by an out-of-sample evaluation of the mean absolute percentage error (MAPE) between hypothetical revenues and observed costs per episode.

Results: Regression analysis leads to a patient classification system with 48 psychiatric cost groups (PCGs) based on psychiatric diagnoses and the HoNOS assessment of severity of illness. The resulting tariff system yields high per-diem payments for the first 7 days of stay, a per-case payment at day 8 and a reduced per-diem rate thereafter. The reduced rate is not cost-covering, constituting an incentive to reduce length of stay, while the combination with per-case payment satisfies cost-neutrality of the tariff system as a whole. As some clinics are concerned with special cases of long-term patients, a cost-covering per-diem tariff is introduced after 60 days of stay (90/120 days are alternative scenarios). Compared to the uniform per-diem tariff presently in operation in Switzerland, a per-diem system with 48 PCGs improves the accuracy of the tariff system in predicting actual costs per case. This means the MAPE is lowered from 21.3% to 19.0% in a system where per-case payment is calibrated to zero. The introduction of a per-case payment deteriorates the accuracy of the system.

Discussion: The proposed PPS combines incentives for an appropriate provision of care with incentives for a reduction of length of stay. The latter type of incentive however is linked to reduced accuracy of the tariff system. Hence, for policy-makers there clearly is a trade-off between accuracy and setting incentives. A system with per-case payments might also lead to an uneven distribution of revenues across clinics (in particular, if average length of stay varies across clinics).

Source of Funding: None declared.

Comparison of the Costs of On-Site and Remote Fidelity Assessment Methods

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Abstract

Background: Successful implementation of evidence-based mental health practices on a broad scale requires psychometrically valid,

yet practical, ways to assess and monitor degree of implementation (i.e., fidelity). Currently, the only rigorous method to monitor implementation is an onsite fidelity visit, a time-intensive approach for both the assessor and the program. We established protocols for alternative remotely-administered fidelity assessment methods for assertive community treatment: expert-rated self-report and a phone-based methods.

Aims: While previous work documented the high reliability and concurrent validity of expert-rated self-report, phone, and onsite fidelity assessments for assertive community treatment, this study compared the costs of our remote fidelity methods.

Methods: We recruited 32 teams to participate in the study, using stratified random sampling and counter-balancing the order of assessments using the Dartmouth Assertive Community Treatment Scale, administered by separate, experienced fidelity assessors. We compared costs descriptively across the three methods of assessment. Costs were analyzed for on-site or phone assessments using the method administered first (phone or onsite) to reduce any biases to personnel effort in a site participating in two successive assessments. To estimate costs that would translate to real-world use of phone or expert-rated self-report using a single rater, we averaged the time devoted by the two assessors and used that effort for the assessor cost calculation.

Results: Costs for the on-site assessments that were administered first (n=19) averaged US\$2579, including an average of US\$1663 in personnel costs and US\$916 in travel costs. Costs for the phone assessments that were administered first (n=13) were US\$571 and all expert-rated self-report assessment methods (n=32) averaged US\$553.

Discussion: Phone or expert-rated self-report fidelity assessments compared favorably to onsite methods in terms of reliability, concurrent validity, and cost. Limitations of the study include the use of VA intensive case management teams rather than higher fidelity ACT programs.

Implications: If used appropriately, these alternative protocols hold promise in monitoring large scale program fidelity with limited resources, potentially improving program quality with only moderate cost to the health authority.

Future Use: Alternative fidelity assessment methods could be used in a stepped, quality improvement scheme where remote assessments are used for well-functioning sites until a trigger event occurs, such as turnover in key staff or loss of adequate fidelity scores. In those cases, the monitoring authority would revert to onsite assessments until the issues resolve.

Source of Funding: None declared.

Towards a New Taxonomy of Scientific Knowledge in Health System Research: Implications for Mental Health Policy and Economics

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Abstract

The development of health system research and complexity analysis has questioned the traditional taxonomy of scientific knowledge in the phases of research discovery, corroboration and implementation. First, 'Scientific evidence' should be differentiated from 'elicited knowledge' of experts and users, and this latter typology should be described beyond the traditional qualitative framework. Within this context 'framing of scientific knowledge' (FSK) is defined as a

group of studies of prior expert knowledge specifically aimed at generating formal scientific frames. To be distinguished from other unstructured frames, FSK must be explicit, standardised, based on the available evidence, agreed by a group of experts and subdued to the principles of commensurability, transparency for corroboration and transferability that characterise scientific research. The typology of FSK includes, among others, health declarations, position papers, expert-based clinical guides, conceptual maps, classifications, expert-driven health atlases, and expert-driven studies of costs and burden of illness. This grouping of costs studies constitutes a different kind of scientific knowledge and should be clearly differentiated from 'evidence' gathered from experimental and observational studies in health economics. Second, cost-analysis studies (eg cost-effectiveness and cost-utility) should be understood as studies of knowledge implementation and not as studies of knowledge discovery. This may have relevant implications for the use of guidelines in mental health economics and the systematic reviews of health economic studies in the next future.

Source of Funding: None declared.

Health Economic Evaluation of Four Parenting Programmes and a Book on Parent Management Techniques for Parents of Children with Conduct Problems: A Multicentre Randomised Controlled Trial

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Abstract

Background: Child conduct problems increase the risk of future costly negative outcomes. Parenting programmes are effective in reducing conduct problems but only few cost-effectiveness studies are published. To the authors' knowledge, there are no cost-effectiveness analyses comparing several programmes within the same RCT.

Objective: To conduct an economic evaluation of the RCT of the four parenting programmes: Comet, Incredible Years (IY), Cope and Connect, and a book on parent management techniques compared to a waitlist control with a time horizon of 4 months (post-test), from a government payer perspective targeting conduct problems in children aged 3-12 years.

Methods: The study samples consisted of 961 parents of 3-12 year-old children with conduct problems, including 862 who started a programme or reading a self-guided book, and 159 in the waitlist control. Conduct problems were measured by the Eyberg Child Behavior Inventory (ECBI). Effectiveness was expressed as the proportion of "recovered" cases of conduct problems based on the Reliable Clinical Change Index. Intervention costs and parents' time costs in attending the interventions or reading the book are reported. We have performed a cost-effectiveness analysis comparing costs and effects between interventions that showed differences in outcomes and a cost-minimisation analysis where outcomes were similar.

Results: In the primary analysis all programmes apart from Connect were effective in improving child behaviour against the waitlist control. Comet showed significantly higher proportion of recovered cases than the book (29.7% vs 17.4%) and higher costs. The cost-effectiveness analysis delivered an incremental cost-effectiveness ratio (ICER) for Comet versus the book of US\$8594 per one recovered case of conduct problems. A cost-minimisation was conducted on the remaining interventions that showed no differences in outcomes, namely the book, IY and Cope. The average cost per recov-

ered case for the book was US\$585, for Cope was US\$2445 and for IY was US\$6624, thus the book being the cheapest alternative. Sensitivity and secondary analyses of study completers and the outcome “improved + recovered” showed the book was no longer effective and Cope was the cheapest option.

Conclusions: In the primary analysis Comet entailed significantly higher effects and higher costs than the book. In the absence of a willingness-to-pay threshold, the book is the cheapest option to achieve minimal significant effects and could be a low-cost and easily delivered alternative within a limited budget. If decision-makers are willing to make larger investments Comet is the best alternative. As shown by the sensitivity analysis, when targeting broader effects, Cope is the cheapest option with Comet still holding the largest effect. Further studies are needed with longer follow-up periods to ascertain on the sustainability of the effects and a full-economic evaluation to help decision-makers set priorities across different interventions.

Source of Funding: None declared.

The Cost-effectiveness of a Specialist Depression Service For Resistant Depression: An Economic Evaluation Alongside a Clinical Trial

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Abstract

Background: Combined psycho- and pharmacotherapy has been found to offer greater effectiveness than single interventions, though evidence from randomised controlled trials remains limited. Individuals with resistant depression have limited treatment options in the UK.

Aim of the Study: This study sought to determine the cost-effectiveness of a specialist depression service, incorporating specialist cognitive behavioural therapy and optimised pharmacotherapy.

Methods: We carried out a pragmatic, multicentre, parallel-group, single blind, randomised controlled trial of a specialist depression service (SDS) for resistant depression, compared with treatment as usual in secondary care psychiatry settings in Nottinghamshire, Derbyshire and Lincolnshire in the UK. One hundred and eighty seven people were randomised. Outcome measures included the EQ-5D-3L, HDRS and GAF, collected at baseline and 6- and 12-month follow-up. Resource use was collected using an adapted version of the Client Service Receipt Inventory (CSRI) at baseline and 3-, 6-, 9- and 12-month follow-up. Costs were considered from the perspective of the National Health Service (NHS) and personal social services. We carried out a complete case analysis and bootstrapping was used to account for uncertainty in our estimates.

Results: Seventy one participants had complete data over the follow-up period. The observed mean incremental cost associated with the intervention was £3838. The incremental cost-effectiveness ratio (ICER) for the intervention was £1478 per point-improvement in the HDRS and £1121 per point-improvement in the GAF. For the HDRS and GAF, the probability that treatment is more effective but also more costly is 92% and 86% respectively. For the cost-utility analysis, the mean observed ICER was £59,243 per QALY. Due to the very high level of missing data, imputation was not used in the primary analysis but was used in a sensitivity analysis.

Discussion: The SDS appears to be an expensive intervention by

usual standards, and might not be considered cost-effective based on 12-month outcomes. However, early indications from an extended 18 month follow-up suggest continued benefits and therefore improved cost-effectiveness.

Limitations: This study suffered from missing data. Furthermore, it is possible that there was some contamination in the control group from the intervention.

Implications for Health Care Provision and Use: This study demonstrates an effective intervention for people with resistant depression, and that this intervention is only likely to be cost-effective if long-term outcomes are accounted for.

Implications for Further Research: Future research should account for long term outcomes. Furthermore, it is important to introduce measures to reduce the amount of missing data in trial-based economic evaluations.

Source of Funding: This study was funded by the National Institute for Health Research.

Assessing Prescribers’ Perceptions of Medication Restriction Policies in Community Mental Health Settings

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Abstract

Background: In recent years, many U.S. states have imposed medication access restrictions in their Medicaid programs, such as prior authorization, preferred drug lists, and fail-first requirements. Several studies have evaluated the effect of such policies on patients’ health; yet, little data is available on how these restrictions affect psychiatrists’ practice and their ability to prescribe optimal treatment regimens.

Objective: To assess psychiatrists’ perceptions of medication restriction policies and the extent to which they impose barriers to appropriate clinical care.

Methods: From June to August 2013, surveys were emailed to psychiatrists practicing in sites affiliated with the National Council for Behavioral Health. A convenience sample of 238 psychiatrists was obtained. Respondents were surveyed about barriers to providing psychiatric care, access to medications, and adequacy of patients’ health plans.

Results: Psychiatrists report that medication restriction policies are common, with a majority indicating that such policies “always” or “often” prevent them from prescribing their medication of choice to patients. Dealing with utilization management-related administrative tasks imposes a substantial time burden on psychiatrists, with 75% of respondents spending more than 10% of their time and one in ten spending 40% or more of their time on such tasks. Three-quarters of psychiatrists reported that their patients had experienced worsened medication compliance and sub-optimal health outcomes as a direct result of medication restriction policies, while 62% reported that their patients had experienced emergency department visits, hospitalizations, and increased healthcare costs.

Discussion: Common utilization management techniques employed by insurance plans and state Medicaid programs may negatively impact patient health, prevent psychiatrists from prescribing optimal treatment, and impose a major workload on psychiatrists that takes time away from patient care and other important duties.

Implications for Health Policy: Psychiatrists reported a high level

of support for various policy changes aimed at reducing barriers to medications access, such as restoring final decision-making authority to physicians rather than health plans, improving the user-friendliness of prior authorization requirements, and removing such requirements altogether.

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Cost-effectiveness of Community Treatment Orders (CTOs): Economic Evaluation of the OCTET Study

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Abstract

Background: Community Treatment Orders (CTOs) may lead to superior health outcomes and consequently to reduced hospital admissions resulting in significant cost savings for the health and social care system, while the additional coercion posed on patients may have a significant negative impact on their quality of life and freedom of choice.

Aims of the Study: The aim of this study was to assess the trade-off between these potentially conflicting impacts of CTOs and estimate the cost-effectiveness of CTOs.

Methods: We carried out a prospective within-trial economic evaluation of the UK OCTET Trial comparing the CTO and non-CTO groups over 12 months (n=328). The economic evaluation included a detailed cost analysis of health, social care and other broader societal costs (in £ for year 2012/13), and an incremental cost-utility analysis with the quality-adjusted life year (QALY) calculated using the EQ-5D-3L as primary outcome measure and patients' capabilities measured by the OxCAP-MH as secondary outcome measure. All relevant data were collected through patient interviews at baseline and at 6 months and 12 months follow-up visits.

Results: The mean total health and social care costs were £35,959 per participant (SD: £44,886) in the CTO group and £36,003 per participant (SD: £41,406) in the non-CTO group. The costs of mental health hospitalisation accounted for more than 85% of the annual health and social care costs. There was no indication of significant difference between the groups in any of the investigated health and social care cost categories, in the change in QALYs gained or in participants' capabilities during the 12 months. Participants in the CTO group had significantly higher mean informal care costs than participants in the non-CTO group (£6138 vs. £2993) and had a significantly increased number of manager hearings and tribunals.

Discussion: CTOs are unlikely to be cost-effective either from a health and social care perspective or a broader societal perspective.

Limitations: Although the common issue of missing data was addressed both by multiple imputation and complete case analysis, its full impact cannot be estimated.

Implications for Further Research: It is still to be seen whether CTOs have any long-term impact on hospitalisation or patients' social outcomes.

Implications for Health Policies: It is important that decision makers consider the increased informal care and legal procedure burdens of CTOs.

Source of Funding: This abstract presents independent research S36

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Effect and Economic Evaluation of the Child-Interview Intervention: An Intervention in which the Child Participates in the Investigation Following a Report of Child Maltreatment

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Abstract

Background: In the Netherlands, suspicions of child maltreatment can be reported to an advice and reporting agency on child abuse and neglect: in Dutch Advies- en Meldpunt Kindermishandeling (AMK). AMKs can choose between two methods for investigation: the adult-interview intervention (AI intervention), in which only adults are asked to provide information on the suspected maltreatment report or the child-interview intervention (CI intervention) in which children are also asked as informants. Nowadays the CI intervention is the preferred approach. However, AMK records show that the AI intervention is still used in about 40% of all investigations and scientific evidence on the presumed superiority of the CI intervention is lacking. The first objective is to examine the effectiveness of the CI intervention on behavioral problems and quality of life of maltreated children (aged 6-18 years) in comparison with the AI intervention. Additionally, adverse outcomes of child maltreatment result in a high demand on multiple services and economic evaluations on child maltreatment are scarce. The second objective is to examine the balance between additional costs and effects of the CI intervention in comparison with the AI intervention.

Methods: A quasi-experiment was performed in which 117 maltreated children (6-18 years) and their primary caretaker completed a questionnaire on three post-intervention assessments. The effectiveness study was performed using multivariate regression analysis. The economic evaluation consisted of a cost-utility and a cost-effectiveness analysis, using non-parametric bootstrapping. Robustness of findings were examined in a sensitivity analysis.

Results: The effectiveness study showed no significant differences in behavioral problems and quality of life between the CI and AI intervention group. Results of the economic evaluation were in favor for the CI intervention (ICUR: -€ 9.484,01; ICER behavioral problems - € 188,15; ICER quality of life - € 160,92). At a willingness to pay equal to zero the probability of the CI intervention being more acceptable than the AI intervention was 71% for QALYs, 60% for behavioral problems and 61% for quality of life. At the threshold € 20.000 this was respectively 93%, 76%, 91%.

Discussion: This is the first effectiveness study on AMK involvement and the first economic evaluation performed in the Netherlands regarding interventions for maltreated children. Both interventions are comparable in terms of effects. However, the CI intervention is likely to result into savings for society.

Source of Funding: Trial registration: NTR3728, funded by ZonMw, project 15700.2012

Short-Term Cost-Effectiveness of Psychodynamic Therapy and Cognitive-Behavioral Therapy in Social Anxiety Disorder: Results from the SOPHO-NET Trial

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Abstract

Background: In Germany, cognitive-behavioral therapy (CBT) and psychodynamic therapy (PDT) are reimbursed by statutory health insurances to treat social anxiety disorder. Social anxiety disorder is characterized by fear and avoidance of social situations, probably including the utilization of health care services. The cost-effectiveness of psychotherapy approaches in the treatment of social anxiety disorder has not been determined yet.

Aims of the Study: This study investigates the short-term cost-effectiveness of CBT and PDT compared to waiting list (WL) at the end of treatment.

Method: The analysis was conducted alongside the SOPHO-NET multi-center efficacy trial. Patients were randomly assigned to CBT (n=209), PDT (n=207), or WL (n=79). A societal perspective was adopted. Resource use was assessed prior and during treatment to determine direct and absenteeism costs. Unadjusted incremental cost-effectiveness ratios (ICERs) were calculated based on remission and response rates determined by the Liebowitz Social Anxiety Scale. Moreover, QALYs were determined based on the EQ-5D. To visualize statistical uncertainty, cost-effectiveness acceptability curves (CEACs) were constructed based on adjusted net benefit regression assuming different values for the society's willingness to pay (WTP).

Results: Both interventions were more efficacious than WL but were associated with increased direct costs besides the respective intervention costs. Unadjusted ICERs per responder were €3,615 for CBT and €4,958 for PDT. Unadjusted ICERs per remitted patient were €5,788 and €10,733. CEACs revealed a high degree of uncertainty: applying the 97.5% probability threshold, CBT proved cost-effective at a WTP \geq €16,100 per responder and \geq €26,605 per remitted patient. Regarding PDT cost-effectiveness only was certain for response at a WTP \geq €27,290. None of the interventions proved cost-effective when QALYs were employed as a measure of health effects.

Discussion and Limitations: At the end of treatment the cost-effectiveness of CBT and PDT compared to WL is uncertain and depends on the societal WTP. The interventions may induce a more adequate utilization of other health care services - involving increased costs.

However, we were not able to compare the long-term cost-effectiveness of the interventions to waiting list as no follow-up data were collected for this group. Due to ethical considerations these patients could start treatment after a planned waiting period of six months.

Implications for Further Research: The development of costs and effects in the long-run should be considered.

Source of Funding: German Federal Ministry of Education and Research (grant 01GV1002)

Long-lasting Economic Consequences of Childhood Neglect and Abuse: Population-Based Study

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Abstract

Background: Emotional neglect, psychological, physical and sexual abuse of children younger than 16 years occur frequently and have devastating long-term effects on mental health that may persist into adulthood. An above-average sense of internal locus-of-control, also known as 'mastery', is known to have protective effects in the pathogenesis of mental disorders. Thus, it potentially cushions adverse effects in neglected and abused children. Nonetheless, child maltreatment increases the likelihood of health service utilisation and productivity losses throughout life. These long-term costs capture the adverse economic consequences of child maltreatment, and may help to draw attention of policy makers, clinicians and researcher in the field of mental health towards neglect and abuse in childhood. In addition, increasing one's sense mastery may help to contain some of the long-term costs of child maltreatment.

Aim of the Study: To calculate the excess costs of health service uptake and productivity losses in adults that suffered from child maltreatment before the age of 16 years, and to evaluate how mastery can potentially act as effect modifier.

Methods: Statistical analysis of a representative sample of 5,618 individuals aged between 18 and 65 years who participated in the Netherlands Mental Health Survey and Incidence Study (NEMESIS).

Results: Having suffered from neglect and abuse before the age of 16 years is associated with excess costs. Adjusted for demographics and parental psychopathology the costs of emotional neglect are at US\$ 2,610 (95% CI: 1,703 ~ 3,517) per person per year. This is equivalent to US\$ 655 million (95% CI: 427 ~ 883) per annum in every 1 million population. However, it appears that the level of mastery has a huge effect on these figures. We estimated the per-patient costs of emotional neglect at US\$ 3,120 in individuals with a weak sense of mastery and US\$ 875 in those with a strong sense of mastery.

Discussion: Depending on the type of abuse between 7% (sexual abuse) and 25.1% (emotional neglect) of the population generate excess costs in health care and the work setting that can be attributed to child maltreatment. In addition, our data lends credibility to the hypothesis that a protective factor such as mastery may help to cushion adverse consequences of child maltreatment.

Implication: Further research on protective factors such as mastery might show the way to ameliorating the adverse consequences of

child maltreatment. Such an endeavour would be intrinsically worthwhile, and might also be associated with economic cost reductions.

Source of Funding: None declared.

Cost-effectiveness of Prescribing Antidepressants by Baseline Severity and Value of Information Analysis

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Abstract

Background: High levels of prescriptions for antidepressants suggest they are being prescribed over a wide range of depression severity scores. However, there is uncertainty among clinicians and national health providers as to the effectiveness and cost-effectiveness of prescribing antidepressants to patients with mild to moderate depression.

Aims of the Study: To determine the most cost-effective threshold of depression severity above which to prescribe antidepressants to patients, in England and Wales, presenting with depression and under consideration for antidepressants. Also to evaluate the cost-effectiveness of a new trial of antidepressants in a population with a wider range of depression severity than in previous trials.

Methods: Meta-regression of existing study results to estimate a proportional treatment effect on depression severity, which is then extrapolated to lower severity scores than those included in the trials. Sensitivity analysis to the extrapolation assumptions. An economic model which consists of a continuous outcome for the initial 12 weeks of treatment, followed by a Markov model with states for depression category and treatment. Treatment effects on Hamilton Depression Rating Scale (HAMD; higher scores indicate more severe depression) were mapped to EQ5D using coefficients derived from a synthesis of existing RCTs. Expected value of partial perfect information (EVPPI) was used to determine an upper bound on the value of collecting further evidence, on various subsets of parameters.

Results: Patients on antidepressants had an additional 12% (CrI 3-21%) decrease in 6-week HAMD versus placebo. Treating patients with severity >2 on HAMD had the highest probability (>65%) of being cost-effective at £20,000 willingness-to-pay threshold. A short-term trial investigating the relation between treatment effect and severity and quality of life in depression patients had EVPPI=£67.7 million over a 10 year time-horizon. The majority of the expected value comes from reducing uncertainty about the treatment effect and the mapping from HAMD to EQ5D. A sensitivity analysis relaxing the assumption that the relationship with severity can be extrapolated beyond the range of HAMD included in the trials led to the same decision recommendation but with increased uncertainty and EVPPI.

Discussion: The conclusion that such a low severity is cost-effective is surprising and may be due to data and model limitations. The impact of treatment effects on HAMD and quality of life was based on only a small number of studies and was identified as being a key driver of decision uncertainty, requiring further evidence.

Implications for Health Care Provision and Use: There is a lack of evidence on the effectiveness and cost-effectiveness of antidepressants at low levels of depression severity scores.

Implications for Health Policies: Antidepressants may be cost-effective when prescribed at low levels of depression severity, however there is a need for further primary research in order to better inform this decision.

Implications for Further Research: There is good evidence that a short-term clinical trial investigating the prescription of antidepressants on the basis of severity may be cost-effective. An expected value of sample information analysis should be conducted to determine the optimal sample size and value of such a trial.

Source of Funding: None declared.

Interest in Treatment of Major Depressive Disorder with Transcranial Magnetic Stimulation in the Outpatient Mental Health Setting: What's the Attraction? Gauging Interest in TMS to Treat Major Depressive Disorder on an Outpatient Basis

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Abstract

Background: When treating Major Depressive Disorder several options exist. Due to undesirable side effects and limited efficacy of antidepressants, and cognitive side effects and anesthesia requirements of ECT, new treatments are needed. Transcranial Magnetic Stimulation (TMS) is now FDA approved for treatment of MOD that has failed at least one antidepressant. Yet, TMS treatment is not covered by most insurance companies.

Aims of the Study: (i) Characterize patient experience with depression and antidepressants; (ii) Determine interest in TMS; (iii) Determine willingness to self-pay for TMS.

Methods: A survey was developed at an outpatient mental health practice, then field-tested. Patients diagnosed with MDD, age 18-64, were offered a survey in the waiting room. Informed consent was obtained. A survey number was linked to their name, written only on the informed consent. Descriptive statistics and correlations were calculated.

Results: Survey completed by 31 patients. Mean age was 44.5 years old; 80% of respondents were female. 61% report some college or higher. 74% have a household income over \$50,000. 77% of respondents report remaining depressed despite treatment with an antidepressant for 8 weeks or longer (treatment efficacy 23%). 42% of respondents report experiencing side effects severe enough to discontinue treatment. 32% of respondents were interested in receiving TMS were it available, yet 100% reported they were not willing to self-pay, with treatment costs of \$300 per treatment, 25 treatments, \$7,500 total cost. However, 10% of respondents were willing to spread the payments out over 24 months at \$300/month, or take out a credit card offer with 0% interest ranging from 12-18 months in order to pay for TMS treatment. Were insurance willing to subsidize TMS treatment cost, 61% of respondents showed interest in proceeding with TMS. Only 13% of respondents have a Flexible Spending Account, which could pay up to \$2,000 of the cost. Nearly 30% of respondents wanted to be contacted when TMS became available. When given lower price points as options, 10% reported willingness to pay \$100/session (total treatment cost \$2,500), and 3% were willing to pay \$150/session (total treatment cost \$3,750). Only 22% of respondents reported interest in going to another provider for TMS. $\text{Corr} = 0.373$ between failed antidepressant treatment and interest in TMS, with $p=0.019$.

Discussion: Patients live with treatments for depression with limited efficacy that carry side effects. TMS offers promise, but has not been accepted to the point of widespread insurance coverage in the US, adversely affecting its utilization.

Limits of the study include relatively small sample size at single location, affecting generalizability to other demographic segments. Implications are to continue to discuss TMS with patients, inquire whether covered by their insurance, and appeal to insurance companies and lawmakers to broaden insurance coverage for TMS. Anticipated broadened adoption of TMS by mental health providers will follow a favorable insurance coverage environment for this service.

Conclusion: Interest in TMS exists when antidepressants have been ineffective, but self-pay is a barrier to treatment, with greater interest at a lower price point, and a need for insurance to include TMS to bring clinical benefit to patients.

Source of Funding: None declared.

A Cost-effectiveness Analysis of the Universal Parenting Program “All Children in Focus”

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Abstract

Background: There has been an increased interest of health economic evaluations of public health interventions. However, few evaluations have so far been conducted on parenting programs, especially in the field of universal programs. A newly developed universal parenting program is All Children in Focus (shortened the ABC program) which aims to promote children’s development. The program was recently evaluated in a randomized controlled trial and found to promote parents’ self-efficacy and parents’ perceptions of their children’s health and development.

Aim of the Study: To evaluate if the ABC program can be viewed as cost-effective. At this stage, we have conducted a preliminary cost-effectiveness analysis of the program.

Method: A cost-effectiveness analysis was planned for within the randomized controlled trial of the program. Information about costs was mainly collected through questionnaires to group leaders and through information from program developers. Set-up costs and delivery costs were included. To measure health-related quality of life in children, a Visual Analog Scale was applied where parents rated their child’s quality of life at baseline and three months post baseline. Three assumptions were made concerning how the effect, which was transformed to quality-adjusted life-years (QALYs), lasted over one year. First, the effect returned to the starting point after six months, second, it lasted for 6 months and returned to the starting point after nine months, and third, it lasted for 9 months and returned to the starting point after twelve months. A threshold of 55 000 Euro/QALY was applied.

Results: The cost for parental participation in the program was 293 Euro per child when calculating on parents’ participating in four sessions, a booster session, as well as ten parents participating in each group. In the calculation, group leaders were running ten ABC-groups on average. Regarding the effect, it ranged between 0.007-0.020 QALYs gained per child depending on the different assumptions. The cost-effectiveness ratio was 42 000 Euro/QALY for assumption one, 21 000 Euro/QALY for assumption two, and 15 000 Euro/QALY for assumption three.

Discussion: The presented analysis is preliminary and based on assumptions regarding how the measured effect will last over time. The final analysis will instead include data from the 6-month post-baseline measurement regarding potential QALY gains in children. We also aim to include QALY gains of parents in the analysis based on parents’ scores from the General Health Questionnaire-12. A potential limitation of the conducted analysis is the reliance of solely parenting ratings. Another potential limitation is the use of a Visual

Analog Scale to measure QALYs in children.

Implications: The preliminary analysis implicates that the program might be a wise use of scarce resources. However, the analysis is preliminary and therefore the final analysis should be presented before further implications are made.

Source of Funding: The Public Health Agency of Sweden (dnr 2010/288).

Development and Validation of a Risk Prediction Algorithm for Recurrence of Major Depression

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Abstract

Objectives: To develop and validate a prognostic model for predicting recurrence of major depression using data from a population-based, nationally representative cohort.

Methods: Wave 1 and wave 2 longitudinal data from the US National Epidemiological Survey on Alcohol and Related Conditions. Participants with a major depressive disorder at baseline and who had visited health professionals for depression were included in this analysis. Mental disorders were assessed based on the DSM-IV criteria. For this study, we included the wave 1 (baseline) participants who reported current or lifetime major depressive episode. We included eligible participants from South and West region in the training data (n = 1,518). Eligible participants from Northeast and Mid-West region were kept in validation data (n = 1,195).

Results: With the training data, a prediction model with 19 unique factors had a C statistics of 0.7504 and excellent calibration. The model had a C statistics of 0.7195 in external validation data (n = 1195) and 0.7365 in combined data. The algorithm calibrated very well in validation data. In the combined data, the 3-year observed and predicted risk of recurrence was 25.40% and 25.34%, respectively.

Conclusions: The developed prediction model for recurrence of major depression has acceptable discrimination and excellent calibration and is feasible to be used by physicians. The prognostic model may assist physicians and patients in quantifying the probability of recurrence so that physicians can develop specific treatment plans for those who are at high risk of recurrence, leading to personalized treatment and better use of resources.

Source of Funding: None declared.

Does Prevention Pay? Health and Economic Impact of Preventive Interventions for School Children Aimed to Improve Mental Health

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Abstract

Background: Sweden is working toward reducing children’s mental ill-health, and preventive interventions, such as evidence-based school programs, have been shown to decrease child mental ill-

health levels. However, little is known about how much municipalities actually spend on these children and if preventive treatment could be financially beneficial.

Aims of the Study: The aim of the current study was to conduct a cost-benefit analysis on the evidence-based preventive school interventions in Sweden that have been shown to counteract the cost of mental ill-health.

Methods: Data on the municipality cost of children's mental ill-health was collected from one school district in a Swedish municipality by calculating the cost of extra support for the children with mental ill-health. The school district has 6256 schoolchildren, with 310 children receiving special support services by the municipality due to mental ill-health problems. Of these, 143 received support in their original school due to either having ADHD ($n = 111$), psychosocial problems ($n = 26$), or anxiety/depression ($n = 6$). The special support they received was either having a personal assistant, being placed in a special education group or having one-on-one time with a teacher. By calculating the cost of extra personnel in school for these 143 children, the municipality costs for mental ill-health was estimated.

Data on the cost of Swedish preventive interventions was calculated by estimating the training and running costs for a municipality using published studies. Based on the published findings, the expected effects of the intervention were calculated.

Results: When conducting the cost-benefit analysis, the effects were underestimated to half of what the published studies had shown. The results showed that the cost of training and running the preventive interventions for the whole district were 531,000 Euro for the first year. The estimated effect showed that the municipality would receive a return on the invested resources after 2 years of implementation (269,000 Euro per year).

Implications for Health Policies: The findings have political and societal implications, in that municipalities can reallocate their funds toward using preventive measures of children's mental ill-health, and thus help improve children's mental ill-health, while saving money for the municipalities.

Source of Funding: Foundation "Idéer för Livet" (Ideas for Life), Sweden

Updated Estimates of Burden Due to Mental and Substance Use Disorders from the Global Burden of Disease Study 2013

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Abstract

Background: The Global Burden of Disease Study 2010 (GBD 2010), published in 2012, was an all-inclusive re-analysis of burden for 291 diseases and injuries and 63 risk factors, across 187 countries. It represented the most comprehensive analysis of disease burden since the original burden estimates were published in 1996. Mental and substance use disorders explained a significant proportion of the global disease burden, confirming them as the leading cause of disability. GBD 2010 findings did not only re-iterate that mental and substance use disorders were a global health priority but also identified salient gaps in the epidemiological literature for mental and substance use disorders. In order to remain up to date with the literature and provide decision-makers with the most representative picture of their population's health, the process of estimating disease burden is constantly evolving. The Institute for Health

Metrics and Evaluation which led the GBD 2010 initiative has endeavoured to make available yearly burden of disease estimates. The next update of burden estimates will be published in late 2014 (GBD 2013). The aim of this presentation is to present GBD 2013 findings for mental and substance use disorders, summarise improvements made to the epidemiological datasets and burden estimation methodology and how these impacted on burden estimates.

Methods: As was the case in GBD 2010, for GBD 2013, burden will be estimated using disability-adjusted life years (DALYs), a metric which combines the disability (as years live with disability, YLDs) and mortality (as years lost to premature mortality, YLLs) associated to a given disease. For mental and substance use disorders, this work incorporates recently published data on the epidemiology of each disorder. It expands upon the disease modelling and disability weight estimation strategy and ultimately aims to reduce some of the uncertainty around prevalence and burden estimates.

Results: GBD 2013 estimates are currently being finalized and will be published in late 2014.

Discussion: Updated estimates of burden assist in ensuring that a country's health system is sufficiently aligned to its population health challenges. They allow decision-makers to compare the effects of different mental and substance use disorders to other diseases and injuries, as well as changes in burden across time.

Whiteford HA, Degenhardt L, Rehm J, Baxter AJ, Ferrari AJ, Erskine HE, et al. The Global Burden of Mental and Substance Use Disorders, 2010. *Lancet* 2013; **382**(9904):1575-1586.

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Predicting Length of Stay in Psychiatry

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Abstract

Introduction: New payment schemes are being implemented in the UK and in Germany based on patient classification systems. The common aim is to adjust reimbursement to differences in hospital costs between patient groups. Resource use should be relatively homogenous within groups in order to set a fair rate for each patient. Length of stay is usually longer in psychiatry than in somatic medicine and it has a strong influence on total costs per patient stay. Research surrounding the U.S. Prospective Payment System for Mental Health in the 1980s has shown that it was difficult to predict length of stay from patient characteristics.

Aim of the study: The aim of this study was to analyse the association between patient characteristics and psychiatric length of stay in a European hospital setting.

Methods: The study included all inpatient episodes admitted in 2013 to a psychiatric hospital. Length of stay was derived from the patient administration database. Leave days were subtracted from total length of stay. Readmissions were treated as a single episode if time away was less than two weeks. Patient characteristics were derived from the electronic medical records. Episodes were excluded if these data were missing. Ordinary least squares regres-

sion was carried out. Standard errors were bootstrapped. Independent variables were chosen on the basis of prior research. Split-sample cross-validation was carried out.

Results: A total of 738 episodes met the inclusion criteria. The mean length of stay was 58 days (standard deviation=41 days). Eight patient characteristics showed significant effects on length of stay. These were affective disorders as main diagnosis (+15.4 days), severity of disease (+12.1), chronicity of disease (+6.4), living distance to the hospital (+2.2 per kilometre increase on the log scale), number of children (-3.4 per child), daily requirement of somatic care (-6.8), male gender (-6.9) and danger to others (-23.5). Furthermore, discharge against medical device and referral to another hospital had decreasing effects on length of stay. The model explained 17% of variance in length of stay.

Discussion: The explained variance in length of stay was low but similar to previous studies. The direction of coefficients appeared clinically meaningful and consistent with prior research for most variables. However, the decreasing effects of somatic ailments and danger to others are in contrast to previous studies. A strength of this study was the large sample size in relation to the available data considering patient characteristics. A limitation was its single-centre design.

Implications for health care provision and use: The provided results inform care planning processes and hospital administration on the basis of European hospital data.

Implications for health policies: The low explanatory power of patient characteristics with regard to length of stays clearly suggests that per case reimbursement schemes should be avoided. Instead, per diem payment systems should be used, which could be adjusted to assumed differences in per diem costs.

Implications for further research: Future research should focus on the analysis of patient-specific differences in per diem resource use in order to inform the design of per diem reimbursement schemes.

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Implementing a National Mental Health Plan in Portugal: how Far Have We Gone?

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Abstract

Background: Over the past decades, the organization and management of mental health services (MHS) in Portugal underwent an evolution similar to that of other European countries, going from an institutional phase, gradually establishing integration with primary care, to the adoption of the principles of community psychiatry. However, despite several advances, the low priority given to mental health within the general context of the country's health, led to a significant delay in the improvement of MHS. The acknowledgement of this situation led to the launching of a new national mental health plan in 2008, aiming to reconfigure the organization and the delivery of MH care in a span of 8 years.

Aims: (i) To complete an assessment of the present status of MHS in Portugal; (ii) To identify the main challenges in implementing the National Mental Health Plan.

Methods: A two-step approach has been used. Firstly, a comprehensive assessment was steered by the Mental Health Program taskforce, through a cross-sectional appraisal of national data. Secondly, the WHO Regional Office for Europe conducted a monitoring mis-

sion that included meetings with all relevant stakeholders.

Results: (i) The most noteworthy aspect has been the reduction of beds in public MHS, mainly due to the elimination of 40% of beds in the decommissioned psychiatric hospitals, as well as a reduction in length of stay of acute patients from 37 to 16 days (57%). (ii) Regarding human resources, there has been a decrease in the number of psychiatrists working in public MHS, even if the non-medical professionals have not increased in the last 5 years. The population ratio of the mental health workforce (at 25 per 100,000) is at the bottom end of the range according to European standard. (iii) Despite the scarcity of MH professionals, there was a significant increase in the number of outpatient appointments, both in child (+30%) and adult psychiatry (+22%).

Discussion and Limitations: Human resources are one of the most important issues in every psychiatric reform. While the proportion of psychiatrists is relatively adequate (6.7/100,000), that of mental health nursing (2.5/100,000) and psychologists (2.5/100,000) is extremely low. There are no incentives to increase activities in the community.

Implications for Health Care Provision and Use: Considering the discrepancy between small workforce supply and high patient demand, teams seem not able to provide multidisciplinary psychosocial care. Outreach activity is limited to emergency intervention. Rehabilitation interventions in the community are still not available for everyone in need throughout the Country.

Implications for Health Policies: Given the movement from institutional to community/integrated care, a strong focus should be put on the development of community programs to be delivered by the Local Mental Health Services (LMHS). Identified problems should be tackled, namely: (i) Lack of financing autonomy, (ii) Understaffing, (iii) Scarcity of psychosocial programs, (iv) Risk of being overwhelmed by referrals from primary care of people with common mental disorders. New models of financing and budgeting are urgently needed in order to overcome some of these barriers, as recognized by the Directorate-General of Health.

Implications for Further Research: Standard macroindicators are very useful in the evaluation of complex processes such as the implementation of a national mental health plan. Nevertheless, they should be completed with other research directed to the identification of barriers and obstacles to implementation.

Source of Funding: None declared.

The Analysis of Quality of Life for Psychiatric Patients' Family Members and their Social Support

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Abstract

Background: In China, it is estimated that there are 16 million patients who are severely mentally ill. However, public awareness of mental illness and consultation rates are significantly low. Without a sufficient support from the public, the psychiatric patients' family members have to take care of the patients.

Objective: To investigate the difference of health care resource utilization among insured and uninsured inpatient with mental illnesses in China, and to analyze the inpatient utilization and cost under different co-payments.

Objectives: This study aims to investigate the status of the quality of life for psychiatric patients' family members, to analyze factors affecting the quality of life for psychiatric patients' family members, to explore the social support that psychiatric patients' family mem-

bers have received and to explore the relationship between the quality of life of psychiatric patients' family members and the social support they receive. Finally, according to the research results, this study expects to present some useful suggestions and feasible measures which may help psychiatric patients' family members improve their quality of life.

Methods: A questionnaire survey is designed to collect data from Centre for Mental Health of Shandong Province through. We aims to survey 500 hospitalized psychiatric patients' family members including all the family members on the spot during the survey. The questionnaire we use consists of psychiatric patients' and their family members' demographic characteristics, psychiatric patients' family members' quality of life and the social support that psychiatric patients' family members receive. We use SF-36 as the quality of life questionnaire and adopt the social support rating scale which is designed by Professor Shuiyuan Xiao. In this study, the main dependent variables include the overall score of quality of life of, as well as each dimension score of psychiatric patients' family members quality of life. The psychiatric patients' and their family members' demographic characteristics, the basic situations of psychiatric patients' illness and their hospitalization, psychiatric patients' medical expenses, and the basic situations of the family members taking care of the patients are the main independent variables of this study.

Source of Funding: None declared.

Management and Treatment of Severe Mental Illness: Evidences from Shandong, China

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Abstract

Background: In recent years, with the competitive pressures, the fast-paced modern life and other social factors, the incidence of severe mental illness is trending to rapidly ascend. At present, there are 16 million patients who are severely mentally ill in china. Most of the patients have no treatment and have a seizure which influences community health. The government has to invest more so that we can take care of all the patients who need treatment. We have established health records of severe mental patient and monthly visitations in medical service reform. There are few studies with respect to the management and treatment of severe mental illness in China until now.

Methods: Retrospective method was adopted and the data of present situation of severe mental illness management were processed through descriptive statistics.

Results: As of December 2011, 43880 health files of patients with severe mental illness had been established and we had followed up 20173 people who were more prone to risky behaviour in Shandong province. The number of patients with free medication was 3465, the number of unlocking the patient was 42. In 2011, 9280 patients with severe mental illness were followed up, the patients rate of disturbing social order and troublemaking was 14.5% and 3.3% respectively. Most patients was those who are schizophrenia, and its rate was 74.03% in information management system of severe mental disease and the poverty rate of patients with severe mental disease was 50.62%.

Conclusions: Treatment and supervision of severe mental illness can not only depend on the relative and they are far from enough. The government should help patients with mental disorders truly achieve "disorder to medicine, crazy to control", especially the patients of severe mental illness.

Source of Funding: None declared.

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Health Locus of Control and Its Relationship with Medical Coping Modes among Medical Undergraduates, China

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Abstract

Background: Health locus of control (HLOC) is defined as people's beliefs regarding whether internal or outside forces have control on their health. The recent version of multidimensional HLOC (MHLOC) scale developed by Wallston et al. (1999) measures five types of HLOC, including internal, chance/ fate, other people, doctors, and God HLOC. However, most of the existing empirical studies were conducted in western nations, and it is unclear whether or not HLOC framework developed in the West fit Chinese.

Aims of the Study: To develop HLOC scale (HLOCS), investigate medical undergraduates' HLOC status, and analyze the relationship between HLOC and medical coping modes in a medical college in Hubei province, China.

Methods: 262 participants completed a questionnaire which included self-developed 21-item HLOCS, Medical Coping Modes Questionnaire (MCMQ, including Confrontation, Avoidance, and Resignation subscales), and health-related behavior inventory. Both HLOCS and MCMQ were 4-point Likert scales (1-4).

Results: Factor analysis indicated that 17-item HLOCS consisted of three factors: External (including external, luck, fate, and God/TIAN), Internal, and Others' influence (including doctor, family members, and other people). Three subscales scores were 1.580.51, 2.730.55, and 2.530.46, respectively. There were no significant relationships between three subscales and gender, grade, health status, frequency of physical exercises, diet, and smoking. However, sleep is related to External LOC, undergraduates with sleep deficit having higher score of External LOC ($P=0.024$). The scores of Confrontation, Avoidance, and Resignation were 2.440.39, 2.240.40, and 1.510.53, respectively. Correlation analysis showed External HLOC was significantly associated with Avoidance ($r=0.144$, $P<0.05$) and Resignation ($r=0.433$, $P<0.001$).

Discussion and Limitations: Chinese HLOC framework differs from the West. Both God/TIAN and doctor dimension were not independent, and they were one part of External and Others' influence dimension, respectively. Undergraduates indicated low level of External, and relatively high level of Internal, and Others' influence. Daily habits except sleep had little impact on HLOC, but External HLOC could predict undergraduates' coping style when they fell sick. One limitation is the confined sample.

Implications for Health Care Provision and Use: Since people with different kinds of HLOC coped with diseases in different ways, it was suggested that health professionals concern about patients' External HLOC and help to reduce its level.

Implications for Further Research: Further research should focus on universal application of Chinese HLOC framework in general population and patients as well as the prediction of HLOC to health coping styles and health outcomes.

Source of Funding: National Natural Science Foundation of China (No. 71203069)

Public Services Use of Children and Adolescents in the 6 Months Before Admission to Psychiatric Inpatient Care: An Analysis of an Austrian Clinic Cohort

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Abstract

Background: Although around 10% of children and adolescents in Austria suffer from serious mental health problems, their illness-related service utilisation patterns are largely unknown. If at all, existing research has only addressed the health care sector while services requirements in mental health care go far beyond the health care system, including the social, the educational and the criminal justice system.

Aims of the Study: This paper aims at analysing the service utilisation patterns of children and adolescents within and outside the health care sector before they are admitted to a child and adolescent mental health clinic. Additionally, we evaluate the private out of pocket payments that occur for primary carers.

Method: A prospective cohort study of consecutive and unselected admissions to a child and adolescent clinic was undertaken. Data on service use and private costs before hospital admission was collected from primary carers by face-to-face interviews using an adapted version of the European Child and Adolescent Mental Health Service Receipt Inventory (EU-CAMHSRI).

Result: Almost all patients (91%) from a cohort of 441 patients had some contact with services or took medication before they were admitted to hospital. Most often, services within the health care outpatient setting are used. Outside the health care sector, support in school as well as consulting services has been used most often, whereas the persons hardly received support in living or work. While males received more services outside the health sector, females tend to receive more health services. Higher service utilisation outside the health sector was associated with higher degree of externalising behaviour. Roughly 32,400 € per 100 patients were spent privately, yet private spending was very unevenly distributed. Private spending increased with social class and externalising behaviour.

Discussion: Mentally ill children and adolescents use a large number of different services within and outside the health sector before admission to hospital. Service use is associated with specific symptoms of the disease, yet not with the diagnosis. Furthermore, it is very unevenly distributed. For some carers, this is linked to considerable financial burden because many of those services are only partly publicly funded or are not part of the health sector. We do not know whether the services are needs based and effective.

Implications for Health Policies: Mental health policy for children and adolescents in Austria needs to focus on how to organize a needs-oriented and coordinated services mix across different sectors that is equally accessible independent of the socio-economic background of the patients.

Implications for Future Research: To support planning, further research is required on the factors that predict service use and on the cost-effectiveness of services.

Source of Funding: None declared.



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