remain undetected under routine conditions. Considering the increased odds for antenatal non-detection of IUGR in women with migrant background, further studies under routine care conditions are warranted to evaluate this finding. Limitations of our study were the low response rate and the possible selection bias.

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Keywords Prenatal care, Effectiveness of antenatal screening, Intrauterine growth retardation, Small for gestational age

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Web-based bone age determination using Tanner Whitehouse Method

Eslami P[1,2], Fatehi M[2], Safdari R[1], Soleimani R , Kahvarin PF

[1]Department of Health Information Management, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran, Islamic Republic Of; [2]Medical Imaging Informatics Research Center(MIIRC), Tehran, Iran, Islamic Republic Of; [3]Medical Imaging Informatics Research Center(MIIRC), Teheran, Iran, Islamic Republic Of

Background
Bone age assessment is important in many fields of medicine, including pediatrics, forensic medicine, and sport medicine. Several methods have been developed to determine bone age. Among them, Tanner and Whitehouse method is considered the most reliable, but complicated and time-consuming, making this method not so welcomed in clinical practice. Electronic methods of data entry and reporting may enhance usability of this score-based method. The purpose of this study is to develop a web-based system to reduce the time required for bone age determination, followed by an assessment of the actual effect in clinical practice.

Methods
We have designed and implemented a web-based application for bone age determination based on Tanner and Whitehouse (tw3) method to help radiologists determine bone age of children through a user-friendly interface. Different levels of access are embedded in the system to ensure appropriate privacy and confidentiality for both patients and practitioners. There are also customizable image libraries, which allow the user to define the score for each of the target areas by rapid point and click methods. The calculated score is plotted onto a normal curve as summarized report, including a visual summery of the process and a chart of an individual's skeletal age compared with chronological age based on reference values for RUS skeletal maturity score.

The system was assessed with respect to functional accuracy and calculation of the level of impact of the system on the reduction of the bone age reading time. In compliance with TW3 method, 30 radiographs were reported, both with and without this application, and the time needed for the reporting was recorded. The images were viewed by Clear Canvas viewer.

The system is a customizable application which allows the user to keep the data of the patients for long-term comparisons and provide not only the score and bone age, but also a collection of images most matching the case and plot indicating the skeletal maturity situation according to normal cases.

Results
The results support that this system can help physicians and radiologists to determine the skeletal maturation of children accurately. Also, the web-based system allows us to reduce the reading time with the TW3 method from 8.4 min down to 2.7 min in average.

Conclusion
The online score-based bone age determination tool can significantly reduce the time required for interpretation and reporting, is reproducible, and can be used from anywhere. We hope this new approach facilitates a wider use of score-based, more accurate methods.

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Rivaroxaban vs. Phenprocoumon use in Germany and risk of bleeding: a claims data analysis based on 80,000 patients

Fassmer AM[1], Jobski K[2], Haug U , Schink T[1]

[1]Leibniz Institute for Prevention Research and Epidemiology - BIPS GmbH, Bremen, Germany; [2]School of Medicine and Health Sciences, Carl von Ossietzky University of Oldenburg, Oldenburg, Germany

Background
Rivaroxaban (RVX) is an increasingly used new oral anticoagulant (NOAC) licensed i.a. for stroke prevention in atrial fibrillation (AF) and treatment of venous thromboembolism (VTE). Clinical trials compared RVX to warfarin, but not to the standard of care in Germany, phenprocoumon (PPC). Recent insights regarding defective devices used to measure blood clotting rates in the control group of these trials raised new questions about the risk of bleeding associated with RVX as compared to standard drugs. The aim of this study was to characterize new users of RVX versus PPC in Germany and to assess and compare bleeding rates in both groups using claims data.

Methods
Based on data from the German Pharmacoepidemiological Research Database (GePaRD) from 2011 to 2013 a cohort of new users of RVX or PPC was established. Comedication, comorbidity, potential indication as well as the thromboembolic and the bleeding risk scores (CHA2DS2-VASc and HAS-BLED) were assessed. Crude incidence rates (IRs) per 1,000 person years (PY) were estimated for any bleeding leading to hospitalization and the sub-types intracerebral, gastrointestinal and urogenital bleeding. A nested case–control analysis (NCCA) will be applied to compare the adjusted risk of these bleeding events between new users of RVX and PPC using conditional logistic regression.

Results
The study cohort included 31,596 new RVX users and 48,965 new PPC users. Main indications were AF (40 %) and VTE (23 %). New users of RVX were younger (median 69 vs. 71 years) and had less cardiovascular comorbidity (31 vs. 46 % in users with AF). The CHA2DS2-VASc was lower in RVX users while HAS-BLED was similar in both groups. The overall crude bleeding rates were slightly lower in new RVX users compared to new PPC users (overall IR: 17.58 per 1,000 PY (95 % CI 15.98–19.29) vs. 19.60 per 1,000 PY (18.43–20.83)).

Conclusion
New users of RVX and PPC differed regarding cardiovascular comorbidity and thromboembolic risk score. Therefore the crude IRs should be interpreted with caution. As the delivery of further data for the NCCA is pending the results will be presented only at the conference.

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BRIDGE Health—an update of European Core Health Indicators (ECHI)

Fehr A[1], Hense S , Ziese T

[1]Robert Koch-Institut, Berlin, Germany

Background
Evidence-based public health policy needs data and health information from valid and comparable sources. Harmonized data collection at European level reduces variation and multiplication of data collection in member states. The ECHI-initiative (European Core Health Indicators) aims at promoting a sustainable, policy-relevant European public health monitoring, thereby reducing health information inequalities in and between EU member states. In four EU-funded projects between 1998 and 2012 (ECHI-1, ECHI-2, ECHIM, JA-ECHIM), a comprehensive list of indicators was developed. From these, 88 public health indicators were selected for the "ECHI-Shortlist".
Methods
The Shortlist is divided into three sections according to the level of 'implementation-readiness' of each indicator. The "Implementation Section" comprises over 50 indicators. For these, data is available for a majority of member states as part of regular international data collections. The indicators can thus be used to support policy making. The data for many of these indicators derive from the European Health Interview Survey (EHIS) or the European Union Statistics on Income and Living Conditions (EU-SILC).

Indicators in the two remaining sections are either operationalized and nearly ready to be incorporated into regular international data collections ("Work-in-Progress Section") or still in need of conceptual and methodological development ("Developmental Section").

The ECHI-Shortlist is an on-going European public health task. Changes in underlying indicator methodology or data collections require changes in definitions and background information for some Shortlist-indicators, and arising public health topics warrant information as a basis for policy making.
Results
Since 2015, the EU funds the BRIDGE Health (BRidging Information and Data Generation for Evidence-based Health policy and research) consortium project. The overarching objective is to develop a concept for a sustainable European infrastructure for public health monitoring (EU-HIS). BRIDGE Health vertically connects European indicator projects. Horizontally, these projects cooperate on relevant topics such as standardization methods, data quality, health information priority setting, or legal and ethical frameworks.

Within the scope of the BRIDGE Health project, the Unit "Health Monitoring" of the Robert Koch Institute (RKI) is tasked with leading Work Package 4 (WP4). WP4 maps data availability for ECHI indicators across Europe, evaluates and improves existing ECHI-indicators and assesses policy relevance for indicator topics. WP4 implements these tasks by conducting a survey among health data experts in EU member states. Based on its results, WP4 will further develop the ECHI-Shortlist, in close cooperation with representatives from international organizations and with a network of experts on national health indicator implementation.
Conclusion
Clear policy relevance is a crucial criterion for the inclusion of indicators into the ECHI-Shortlist. The availability of data is then key to the implementation of indicators. Sustainable and harmonized data collections allow to assess and compare states and trends in population health and in health related determinants in Europe, as well as in health care and services. Several EU-funded projects set the cornerstones for a European public health monitoring. BRIDGE Health will facilitate an up-to-date list of indicators and a concept for a European health infrastructure to support the design, implementation and monitoring of public health policy.

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Obesity and post-operative cognitive dysfunction: a systematic review and meta-analysis

Feinkohl I[1], Winterer G[2], Pischon T[1,2]

[1]Max-Delbrück-Centrum für Molekulare Medizin (MDC) Berlin-Buch, Berlin, Germany; [2]Charité - Universitätsmedizin Berlin, Germany

Background
Post-operative cognitive dysfunction (POCD) occurs frequently after surgery, and is associated with an increased risk of subsequent dementia diagnosis as well as premature death. Though identification of risk factors for POCD will enable risk assessment of patients undergoing surgery and will additionally help to shed light on the etiology of the condition, few risk factors have been determined to date. Obesity is established as increasing the risk of hospitalization and late-life cognitive impairment, and so is a plausible candidate predictor of POCD. Here, we report a systematic review and meta-analysis of studies on the association between obesity and risk of POCD.
Methods
PubMed and the Cochrane Library were systematically searched. Studies were included if they had prospective designs, reported on human adults undergoing surgery, if cognitive function was measured pre- and post-surgery, if obesity, body mass index (BMI) and/or body weight were ascertained, and if associations with POCD were reported as relative risks or odds ratios. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) and MOOSE (Meta-analysis Of Observational Studies in Epidemiology) guidelines were followed. Underweight, weight loss, and post-operative delirium were not considered.
Results
The search yielded 287 articles, of which inclusion criteria were met by six articles. Samples totaled 1432 older patients (mean age $\geq$62 years) who were followed up for 24 h to twelve months after surgery. Study quality was relatively poor and studies varied in their consideration of potential covariates. Analysis of three studies with obesity defined as a categorical measure found a trend for a higher risk of POCD among persons with BMI >30 kg/m^2 versus $\leq$30 kg/m^2 that fell short of statistical significance (RR 1.27; 95 % CI 0.95, 1.70; $p = 0.10$), with indication of moderate statistical heterogeneity between the studies ($I = 77$ %; $p = 0.01$). No associations were found in one study that analyzed BMI as a continuous predictor of POCD (RR 0.98 per kg/m^2; 95 % CI 0.93, 1.03, $p = 0.45$) or when effects were pooled across two studies that associated body weight as a continuous measure with risk of POCD (RR 0.99 per kg; 95 % CI 0.89, 1.09; $p = 0.83$).
Conclusion
In the first systematic review of obesity as a potential risk factor of POCD to date, we found that a very small number of studies have addressed the topic. Their results overall provide only limited support for an increased risk of POCD in patients who are obese. Further large-scale, prospective investigations as well as more detailed re-analysis of data from existing surgical cohorts are necessary for clarification.