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MMR VACCINATION COVERAGE AMONG ADOLESCENTS IN SWITZERLAND: DO SCHOOL VACCINATION PROGRAMS MATTER?

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Objective: To examine the influence of school vaccination programs, linguistic region, nationality, gender and birth cohort on coverage for measles, mumps and rubella (MMR) at 2 doses for teenagers aged 16 years in Switzerland.

Subjects and Methods: Using the database from the Swiss National Vaccination Coverage Survey 2005-10, univariate and multivariate logistic regression models with fixed and random effects were used to determine the impact of school vaccination programs on MMR coverage, while controlling for nationality, gender, birth cohort and linguistic regions.

Results: Based on the multivariate logistic regression, linguistic region was not significantly associated with being up to date (UTD) with 2 doses of MMR among 17,612 adolescents. The odds ratios were 0.97 (95% CI: 0.84-1.11) for the French-, 0.91 (0.71-1.16) for the Italian- and 0.73 (0.39-1.37) for the Romansh-speaking regions (reference: German-speaking region). Adolescents originally from Southern Europe had higher coverage (85.5%; 82.0-88.9%) as compared to their Swiss counterparts (78.7%; 77.8-79.6%). MMR vaccine coverage for teen boys was 2.9 percentage points lower than for girls. Coverage by birth cohorts (year of birth 1987-1994) increased by 2.9 percentage points per year of birth. Adolescents living in cantons where school nurses were present during vaccination card check-ups had a higher odds of being UTD (1.46; 1.22-1.74) compared to teenagers living in cantons where nurses were not present.

Conclusions: In contrast to the common belief that linguistic region is the deciding factor for being UTD in Switzerland, our study shows that the type of school vaccination program has a greater impact on MMR vaccine coverage for adolescents. The higher coverage level detected in the French-speaking region is most likely due to the different preventive measures implemented as compared to the German-speaking region. The results may contribute to political decisions regarding immunization programs in the schools.



NEWBORN SCREENING FOR CYSTIC FIBROSIS IN SWITZERLAND – EVALUATION AFTER ONE YEAR

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Background: In January 2011, Switzerland started new-born screening (NBS) for cystic fibrosis (CF). The screening is part of the established neonatal screening (Guthrie test) and comprises IRT measurement (1st tier) followed by searching for the 7 most common DNA mutations (2nd tier). Children screened positive are referred to CF centers for diagnostic testing. We evaluated the screening by describing outcomes of the screening (aim 1) and assessing parents' satisfaction (aim 2).

Methods: For aim 1, we collected data on all children detected by NBS in a central database. Data were reported independently from the central screening laboratory, the genetics lab and all CF centers. We determined: number of children with positive screening results, results of diagnostic testing, recall rate, positive predictive value (PPV) and age at diagnosis. For aim 2, CF centers distributed a questionnaire to all parents to assess their satisfaction with the screening process, including information, feelings and overall approval.

Results: By January 2012, 84 children were screened positive and referred to a CF center. Recall rate was 0.63%. CF was diagnosed in 30/84 children (PPV=35.7%). With 83'198 births, this reflects an incidence of 1:2773 children. Mean age at diagnosis was 41 days (range 13-135) compared to 198 days (13-1033) in the years before introduction of the NBS (1990-2010; $p < 0.001$). The questionnaire was returned by 47/81 families (58%). 68% of families were satisfied with the information they had received in the maternity ward, while 89% were satisfied with the additional information received later in the CF centre. After the telephone call from the CF centre, most parents (35, 76%) felt troubled or anxious. After the visit in the CF centre, only 16 families (34%) remained anxious: 17% of families of a child without and 61% of families of a child with CF ($p = 0.002$). The large majority of parents (91%, 43/47) was glad that their child had been screened and this opinion was independent of the final diagnosis ($p = 0.257$).

Conclusion: Overall, the NBS was implemented and accepted well. It led to a significant reduction in the age at diagnosis. Future studies will show if this translates to better health outcomes. Although many parents felt anxious after the initial phone call, they felt better after the visit in the CF centre, and the large majority of families were glad that the screening tests had been performed.



CHLAMYDIOSIS: ON THE RISE IN SWITZERLAND?

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Objectives: National health statistics report a 2.5-fold increase in laboratory confirmed *Chlamydia trachomatis* (CT) cases over the last decade in Switzerland where no CT-screening programme exists. The interpretation of the data is limited given missing denominator information. Our objective was to obtain such denominators and describe the epidemiology of CT in canton Basel-Stadt, Switzerland.

Methods: Laboratories reporting at least two cases of *Chlamydia trachomatis* infections from Basel-Stadt residents to the Swiss Federal Office of Public Health in 2010 were asked to provide demographic and test related data. CT-positivity rates, defined as the number of positive tests divided by the total number of tests performed, were calculated for 2002-2010. The influences of test year, age, sex and laboratory on CT-positivity were investigated in a multivariable model. Positivity does not represent the prevalence among the tested population since the denominator may include multiple tests from the same individual.

Results: Positivity differed between sexes and age groups. Female and male CT-positivity rates were 4.7% and 11.1%, respectively. Test year was significantly associated with test outcome in the multivariable analysis but no time trend was observed.

Discussion/Conclusion: Our findings suggest that in Basel-Stadt, CT-positivity did not increase between 2002 and 2010. The observed increase of chlamydia cases in the national notification system for infectious diseases may not represent an epidemiological trend, but is rather a result of increased testing.

A CT-infection is more often asymptomatic in females. In concert with different health seeking patterns among males (symptom-based) and females (screening-like routine check-ups), CT-positivity for females rather resemble a prevalence measure while for males it measures mostly incident infections (thus, resembling incidence). Consequently, publically accessible routine health data from the national notification system on CT infections consist of data of two distinct testing populations.

In contrast to findings from other European countries, the current study, which was limited to a small part of the country, found no increase in CT-positivity during the past nine years. A similar analysis using a representative sample should confirm this finding for the whole of Switzerland.



WANN IST DIE REGIONALE IMPFUNG GEGEN MENINGOKOKKEN SINNVOLL?

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Die aktuell gültigen Empfehlungen des Bundesamtes für Gesundheit sehen eine regionale Impfung gegen invasive Meningokokken-Erkrankungen (IM) der Serogruppe C vor, sobald mit mindestens 3 Fällen innerhalb von 12 Wochen eine Inzidenz von 10 Fällen/100.000 Einwohner in einer Region überschritten wird. Wenn eine Region mehr als 100.000 Einwohner umfasst, wird die Region in Gruppen von Gemeinden oder in Quartiere unterteilt.

Ziel dieser Studie war zu prüfen, welche Konsequenzen die Impfeempfehlung für die verschiedenen Regionen in der Schweiz hat. Weiter sollte beurteilt werden, ob sich die zu impfende Region besser als durch die administrative Einheit eines Bezirks beschreiben lässt.

Dazu wurde ein Netzwerkmodell zur Übertragung von IM in Abhängigkeit der aktuell beobachteten Mobilitätsmuster und unter Berücksichtigung der bekannten Übertragungsmuster berechnet. Das Modell wurde für die Grossstädte, die Agglomerationen sowie die ländlichen und abgelegenen Regionen separat berechnet.

In vielen Fällen erlaubten die abgeleiteten Kontaktmuster keine eindeutige Definition einer potentiell betroffenen Region. Soll ein sehr grosser Anteil eines Kontaktnetzwerks durch eine regionale Impfung abgedeckt werden, so werden die entsprechenden Gebiete oftmals so gross, dass die Grenze von 100'000 Einwohnern überschritten wird. Da die Schwelle, ab welcher die Impfung einer Region empfohlen wird, von der Einwohnerzahl der Region abhängt, können die gegenwärtigen Empfehlungen zu willkürlichen Anwendung führen.

Aufgrund des massiven Ausbaus der Verkehrsinfrastruktur und der daraus resultierenden Zunahme der täglichen Pendeldistanz, werden künftige Epidemien weniger lokal begrenzt sein. Ausserdem wird die Zunahme der Bevölkerungsdichte ein Erreichen des epidemischen Schwellenwerts immer unwahrscheinlicher machen. Weiter verkompliziert die Tatsache, dass die zu erwartenden Übertragungsmuster nicht zwingend deckungsgleich mit politisch-administrativen Grenzen sind, die praktische Umsetzbarkeit einer regionalen Impfung.

Deshalb ist die Sinnhaftigkeit der Definition eines epidemischen Schwellenwerts grundsätzlich und die regionale Impfung in der praktischen Umsetzung in Zukunft sehr in Frage gestellt. Die Netzwerkanalyse hat aber auch gezeigt, dass eine regionale Impfung bei Ausbrüchen in abgelegenen Regionen am ehesten noch Sinn macht.



DIFFUSION DE LA MÉTHODE MÉDICAMENTEUSE POUR L'INTERRUPTION DE GROSSESSE DANS LE CANTON DE VAUD : 2006-2011

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Introduction: Autorisée pour la première fois en Suisse en 1999, l'interruption de grossesse (IG) médicamenteuse par ingestion de mifepristone est de nos jours plus fréquemment pratiquée que la méthode chirurgicale. En cabinet privé, l'IG médicamenteuse est officiellement autorisée depuis 2008. Sur mandat du médecin cantonal, l'IUMSP effectue depuis 20 ans le monitoring des IG pratiquées dans le canton de Vaud. Cet outil de surveillance a permis de suivre la diffusion progressive de la méthode médicamenteuse dans le canton et d'identifier les facteurs associés à cette pratique.

Méthode: Le formulaire de déclaration obligatoire des IG contient les caractéristiques sociodémographiques et les caractéristiques de l'intervention (âge gestationnel, établissement, motif, méthode). Les analyses de tendance ont été conduites sur les données annuelles de 2006 à 2011. La significativité statistique a été évaluée en utilisant le test non paramétrique 'nptrend' de Stata. Une régression logistique a été utilisée pour estimer les odds ratios ajustés (aOR) des facteurs associés à l'utilisation de la méthode médicamenteuse.

Résultats: Sur l'ensemble des IG, l'utilisation de la méthode médicamenteuse a significativement augmenté passant de 37.5% en 2006 à 61.9% en 2011. La diffusion de la méthode s'est passée de façon très inégale selon le type d'établissement : hôpitaux régionaux, puis CHUV, bien plus tard les cliniques privées. Cette inégalité ne s'explique pas par les caractéristiques de la clientèle : si différentes selon l'établissement, celles-ci n'ont pas changé de manière significative pendant cette période. Par contre, en ce qui concerne les caractéristiques de l'IG, les établissements se différencient uniquement par type d'intervention. Comparé au CHUV, la méthode médicamenteuse est significativement plus utilisée dans les hôpitaux régionaux (aOR=1.14) et moins utilisée dans les cliniques privées (aOR=0.29). Comme on pouvait s'y attendre, un âge gestationnel inférieur ou égal à 7 semaines est significativement associé à cette méthode (aOR=30.5) ainsi que le motif psychologique comme raison principale de l'IG (aOR=2.5).

Conclusions: Le monitoring des IG met en évidence la logique institutionnelle à l'origine de la diffusion de la méthode médicamenteuse dans le canton de Vaud. Les déterminants des différences observées ne peuvent néanmoins pas être identifiés dans le cadre d'un monitoring et nécessiteraient une investigation particulière.