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**SCREENING FOR KIDNEY DISEASE IN PREGNANCY:
MODELLING AND COST EFFECTIVE OF A CONTROL POLICY**

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INTRODUCTION AND AIMS: The incidence of preeclampsia equals the prevalence of chronic kidney disease (CKD) in pregnancy, however the risk of preeclampsia is well known whereas the risk of CKD is scarcely appreciated. The European guidelines for the management of normal/low-risk pregnancy include a search for major risk factors (diabetes, thyroid disease and hypertension). Urinalysis (to detect proteinuria) is the only marker of kidney health included in screening and control policies. Renal function

is not measured, despite the risks CKD bears on pregnancy (pre-term delivery, small for gestational age babies). The addition of serum creatinine, the basic marker for kidney function, would, if corrected interpreted, allows diagnosis at least of cases with kidney function impairment. The present pharmaco-economic analysis is aimed at quantifying the cost of adding serum creatinine to the current pregnancy screening and monitoring tests in two European Countries

METHODS: We modeled different health care scenarios based upon quantification of serum creatinine cost, number of pregnancies in Italy and France, number of tests (maximum: 1 pre, 3 during, 1 post-pregnancy; minimum: 0.25 pre, 2 during and 0.25 post-pregnancy). The costs were obtained from one of the largest non-University Hospitals in France and from a large University Hospital in Italy. The cost for serum creatinine was considered as added to tests already performed; so we added the cost of laboratory supplies, estimated as 0.1-0.20 euro per test (we did not consider serum creatinine as a self-standing test, which would add up to 1.0-1.5 Euros per test). The cost of dialysis treatment was rounded at 60000 Euros per year; the cost for hospitalization in maternal or fetal Intensive Care Unit was averaged at 2000 Euros per day.

RESULTS: In the least expensive scenario (minimum number of test, minimum cost), considering 500,000 pregnancies per year in Italy and 750,000 in France, the Italian health care systems would need adding 125 000 Euros (187 500 euro in France). In the most expensive scenario, it would be necessary adding 1 Euro per pregnancy (500 000 Euros in Italy; 750 000 in France). With the hypothesis of detecting all CKD stages 3-5 (estimated prevalence of 1:750 pregnancies), discovered in pregnancy in 50% to 25% of cases, the policy of controlling serum creatinine would allow finding a clinically relevant CKD in 1:1500 -1: 3000 pregnancies per year. Translating this figures into hospitalizations days, the least expensive scenario corresponds to about 62 days of hospitalization in maternal or fetal Intensive Care Unit in Italy (94 in France), versus about 250 days in Italy (380 in France) in the most expensive scenario. Since early diagnosis could improve management of high risk patients, avoiding on the average one day of maternal or fetal intensive care Unit per new diagnosis would pay for the screening cost. Furthermore, retarding dialysis start of two weeks per patient would pay for all the tests.

CONCLUSIONS: In 2018, the World Kidney Day is dedicated to women and kidney disease. One of the goals is the optimization of early diagnosis. The inclusion of screening for CKD in pregnancy is probably cost-effective according to different scenarios, leading to a reduction of health care costs, in the short (hospitalization) and long-term (dialysis).