Summary of the European Salt Action Network (ESAN) Statement on

"Population Dietary Salt Reduction and the Risk of Cardiovascular Disease"

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Cardiovascular disease (CVD) due to high blood pressure is the main cause of death and disability in adults worldwide. The risk of CVD increases as blood pressure (BP) increases i.e. the higher the BP, the greater the risk of CVD. The majority of CVD death and morbidity caused by BP occurs at blood pressure levels that are just slightly above the normal range i.e. between 120 and 140 mmHg systolic blood pressure. Most individuals would not be prescribed medications if they were found to have blood pressure at these slightly higher than normal levels. The World Health Organization (WHO) recommends that diet and lifestyle improvements are the best options to reduce the risk of CVD in these people. As shown in a number of research studies, one key lifestyle change is to reduce the amount of salt (sodium) consumed daily as high salt intake is associated with high BP. If a person reduces the amount of salt they eat, they are seen to have lower blood pressure and therefore a lower risk of CVD.

WHO dietary guidelines recommend a 30% reduction in salt consumption by 2025 across the population - the ideal individual target is no more than 5g of salt (2g of sodium) consumed by an individual per day. Some recent scientific studies published by a single research group are not in agreement with this target set by WHO. The studies include the Prospective Urban Rural Epidemiology (PURE) study, two randomised clinical trials on the effectiveness of combined drug treatment in patients with high blood pressure (ONTARGET, TRANSCEND) and data from individuals who were screened to take part in the DREAM trial (EpiDREAM). These studies suggest a J-shaped association between levels of salt consumption and cardiovascular outcomes implying that consuming less than 5g of salt per day (as recommended by WHO) is equally as harmful as a level of more than 12g of salt per day. However, these studies have a number of flaws which will be discussed in the following sections:

- They do not ask volunteers to collect total amount of urine produced over 24 hours to calculate an individual's salt intake. Instead only one casual 'spot' urine sample is used to calculate total salt intake over 24 hours in these four studies - this is a very unreliable way to assess an individual's salt intake that produces biased results.
- The researchers saw higher mortality risk in a low sodium intake group. However, the low salt (sodium) intake groups had an over representation of older people with illness including CVD, heart failure, type two diabetes and obesity. Given the low salt groups were made up of older people with illness it is expected that they would have a higher risk of death. Such groups are also more likely to have changed their diet upon medical intervention for their illness. Study results based on older and ill people are not reliable to inform current public health strategies for disease prevention amongst the general population. They are also unreliable to prove a relationship between low salt intake and increased CVD mortality.
- The researchers attempt to overcome the above-mentioned methodological issues by re-analysing the data in a different way. This is ineffective as the same problems persist following this re-analysis of the data. The reanalysis of combined data from some of the studies in question yield the same findings as the original studies, which is to be expected. However, given the methodological problems with these studies, the original study findings and findings based on reanalysis are not reliable to inform current public health strategies for disease prevention amongst the general population.
- The conclusion from these studies implies that the current level of salt intake of 10-12g per day is the least dangerous level of salt intake and a policy of 'no intervention' on salt intake is needed. However, this is not in agreement with substantial evidence showing that blood pressure reductions can be achieved by halving current salt intakes.

There are a number of other studies which are not affected by the methodological and analysis issues outlined above and so are considered more reliable. These studies all found a direct relationship between higher salt intake and CVD. They did not find that consuming less than 5g of salt was as dangerous as consuming high intakes of salt e.g. 12g.

In conclusion, the evidence supporting global actions for a moderate reduction in salt consumption to prevent cardiovascular disease is strong. New studies with controversial findings are inappropriate to address the complex associations between salt intake and CVD outcomes and should not overturn the concerted public health action to reduce salt intake levels globally.