The Role of the State in Public Health.
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There have been remarkable improvements in health since Gresham College was founded in 1597. For much of the period up to the mid-1800s life expectancy was around 40 years, and for the poorest it was less than that. There has since been a steady increase in life expectancy which now is above 80 years. Many factors contributed to this extraordinary change including improvements in medical science, diet and housing but State prevention played a major role. This lecture is about the role of the State, including both central and local government in preventing disease. This is a note covering some of the key ideas rather than a full transcript.

Public health aims to extend healthy life by preventing or delaying disease, death, ill-health, indignity and disability. Individual citizens, medical professionals and the State all have responsibility and a role to play. Much of public health does not require the State, but State powers and resources have the capacity to prevent death or ill-health in many citizens. The question is when should it?

How you answer this question depends on your discipline, nation and time in history. Medical professionals over time or in different countries would answer this differently. Unlike other Gresham lectures I have given and will give, this is a personal perspective as a medical practitioner in clinical and State medicine in the UK in 2020 rather than a summary of current medical knowledge. For those who would like to see lectures summarising current major diseases including cancers, the major infections, cardiovascular disease and dementia, these can be found on the Gresham College website.

There are several types of prevention in healthcare. These are conventionally divided into primary prevention in the disease-free population targeting everybody to prevent disease starting; secondary prevention - picking up early disease and high-risk groups to delay progression and tertiary prevention to prevent further disease or disability. State medicine and individual medical practitioners (doctors, nurses and other medical staff) both have a role. Generally, most people only go to a doctor when they or their family members are unwell. Primary care physicians (GPs) and specialists have the central role in most secondary and tertiary prevention. Primary prevention for those who are not yet unwell often falls to the State, along with health protection against infectious outbreaks and other emergency threats. This may be central government, or local government, for example through the network of Directors of Public Health.

When individual doctors are involved in prevention with their patients it is possible to have individual consent. The doctor and the patient will discuss the risks and benefits of, for example, taking statins to reduce the probability of heart disease or stroke. For primary prevention by the State individual consent is not possible. In democracies the role of the State must therefore depend on the view of citizens expressed through the elected government. It is the job of the health specialist to lay out the evidence and say what *can* be done by the State to improve health and the risks either way. It is the job of elected politicians, whether national or local, to say what *should* be done by the State.

The final decision-making by elected representatives becomes increasingly important when more State powers are being used. In public health there is a *ladder of possible State intervention*. At the

bottom it includes supporting science to test possibilities, informing the public of risks and engaging with industry to help them improve the health of their products or services. Further up the ladder includes regulation, 'nudge' taxes behavioural interventions and mass voluntary programmes such as vaccination or screening (in which individual consent is possible and essential). The top end of the ladder includes heavy taxation, banning products or making individual citizens subject to civil or criminal law, and in these cases the complex trade-offs must be decided by politicians.

The view that the State should interfere as little as possible in the lives of individual citizens is a long and honourable one. It is on both the left and the right of politics, in the law and by newspaper commentators with varying degrees of consistency. Almost everyone however would accept that there are some things only the State can do. The set point of public and Parliamentary opinion can change. It was for example controversial when it was first proposed that the State should prevent children under 10 years old being sent up chimneys. It was accepted that it caused serious lifelong health damage but was thought by some in Parliament an unreasonable imposition on trade. Campaigning began in the 1760s, but an effective Act was not passed until 1875. This is an example where public and parliamentary opinion have undoubtedly changed.

In considering risk to health, and the role of the State in reducing this, there are three possibilities at any point in time. The first is the public overwhelmingly expects the State to act and be very critical if it did not. The second is that the public overwhelmingly expects the State not to interfere and would be very critical if it did; banning rock climbing by children or Liquorice Allsorts would be examples where the public would be outraged even though these might reduce harm. The main contention of this lecture is the great majority of things the State could do either the public obviously does support, or obviously does not. There are then some areas where the public is split and in these political tradition about the role of the State comes into play; they are a minority.

Examples of when the public expects the State to act and usually has for generations have an obvious logic.

The first group is where *risk is shared across society*: your risk is my risk. These include epidemics, infectious diseases more widely including vaccination, clean water and safe food and isolating the sick, and pollution especially air and water. To reduce the risk to me and my family I also need to reduce the risk everyone else around me; the State makes possible this collective risk reduction.

The second group is where a *major power imbalance may kill* or harm people. This includes industrial injury and occupational disease, industries based on addiction like smoking, and industries where potentially dangerous although necessary or desirable products are produced like motor vehicles.

The final group which commands strong public support is *protecting the most vulnerable* including children and maternal health.

This lecture will explore areas where the public has expected the State to act, often for hundreds of years, and also areas where the State is now less intrusive than it was historically.

States intervened to reduce the impact of *epidemics* following contemporary beliefs as far back as we have records. Fourteen days or more of quarantine were applied to those who had arrived overseas from an area of infection back to the plague pandemics of the Middle Ages. The State often acted forcefully to detain the sick until they recovered or died to prevent onward transmission. Particular bans or regulations of those perceived as high risk or close contact professions during epidemics are again centuries old. Arguably the turning point for basing this on scientific evidence

came with John Snow's demonstration that particular water companies and, famously, the Broad Street pump were responsible for cholera cases during a major epidemic in London in 1854. Combating cholera, typhoid and other epidemic diseases was considered the most important role of State preventive medicine since it became formalised around that time.

COVID-19 is a current example. The lockdown measures that the UK nations introduced in early 2020 were the most severe curbs by the State on individual freedom for decades; it had over 90% support in public polling. Overwhelmingly people intend to follow public health advice to protect others. They want others to do so as well or their own sacrifice seems in vain and the State can help ensure this. The State has the authority and the resources to act fast by imposing lockdown, restricting travel, switching research priorities, expanding healthcare or underwriting a furlough scheme. It is not obvious what the alternatives to the State are in emergencies on this scale.

The State has also long been seen as responsible for protecting the public from *contagious endemic diseases* (ones that do not come in epidemics). Leprosy is one of the most extreme examples where sufferers were excluded from society but maintained in settlements. Tuberculosis wards and fever hospitals are other examples. This is an area where the State is much less intrusive than it used to be because improvements in sanitation, housing, diet, vaccination and treatments (especially antibiotics) have substantially reduced the real and perceived threat from contagious diseases. Lowry's *Fever Van* is an illustration of practice within living memory where children infected with diseases such as scarlet fever would be removed from their homes, taken to fever hospitals where they might die and all their possessions would be burned by the State; this would be almost unthinkable now.

Provision of voluntary mass *vaccination* programs to reduce the risks of disease are also widely seen as a State responsibility. People sometimes forget what it was like in a pre-vaccine world, but this is another example where reducing my neighbours risk reduces my risk. I will be giving a lecture on vaccination later in the series.

Providing *clean water, sewerage and regulating waste* to reduce infections has been a responsibility of governments for centuries (usually local rather than national government). These are some of the most effective public health interventions.

The principle that the State should *regulate food* to keep it safe from infection is long-standing (from medieval times) but can be controversial in practice. Examples which generated considerable political heat in the UK include pasteurisation of milk when it was first brought in, reducing salmonella in eggs and combating BSE/nvCJD.

There is support for the role of the State in reducing *air pollution* across the political spectrum. Keeping polluting industries away from habitation is a long State responsibility; for example, King Edward I banned the use of sea coal London in 1272. The biggest spur to UK action was the Great Smog of 1952 in which at least 4000 people died, this led to the Clean Air Act of 1956. Air pollution leads to significant cardiovascular and lung disease. If the State does not intervene an individual has minimal chance of regulating their own risk. Air pollution has reduced substantially over the last 50 years. This is largely due to very direct government action such as eliminating the toxic lead in petrol and regulations to spur innovation in the sector which has led to much cleaner vehicles on the roads.

Motor vehicles also illustrate the complex role of the State in reducing risks to life, such as the substantial reduction in road accidents leading to deaths in the UK. This includes regulations on car designs, for example to include crumple zones and airbags, to ensure that the vehicles are as safe

as possible. This is the State acting with industry to produce a safe level playing field. Some is direct State responsibility including road design, lighting and maintenance. Some is reducing the risk of other people being hazardous on the roads including speed limits, driving tests, drink-driving laws and the MOT test. In all of these it is reassuring that other road users have to follow them. The most controversial was the compulsory wearing of seat belts; when introduced it caused a storm about whether the State was interfering with individual rights.

The UK public believes government should reduce the *risk of being killed solely due to work*. Whilst grumbles about 'health and safety gone mad' are a staple, nobody would wish to return to the era when many hundreds of people were killed in unregulated industries. The UK now has one of the safest records in work safety anywhere in the world. The great majority of the serious occupational diseases, infections and cancers have also been eliminated or minimised by State action, with the banning of asbestos to stop the almost entirely unnecessary cancer mesothelioma, which was the last really major one.

There is also public support for State intervention where a wealthy industry causes harm to the *vulnerable, depends on addiction for its operating model, or harms others*. The classic example is smoking (which does all three). It is one of the major causes of deaths from cancer, heart disease, stroke and lung disease. Whilst the public accepts the rights of individuals to smoke, they are repelled by the deliberate targeting of children to be addicted to smoking. The majority of smokers' support banning smoking in cars with children. The health impact of other people's cigarette smoke is also significant and there is support for legislation to reduce second-hand smoke in the workplace and other public environments. Most smokers want to quit but cannot due to addiction.

Finally, in the areas which are usually uncontroversial the State has a role is mass voluntary *screening*. Services such as cervical, bowel cancer and breast cancer screening have led to significant reductions in late stage cancers and consequently deaths from cancer.

In all of the areas above there may be controversy around individual proposals and interventions but the expectation by the public that the State will act to prevent disease and death is long-standing and follows logic. The result has been some of the major improvements in health in history.

We should now turn to those areas which are more contested.

The role of the State in paying for providing medical individual *treatment, which include secondary and tertiary prevention*, varies widely by tradition and politics. The UK tradition is strong support for the NHS: State provided free at the point of delivery. GPs do most of the secondary prevention. There are however widely divergent approaches between different nations in their approach to State responsibility for treatment, including secondary and tertiary prevention. In general, higher income countries have a higher proportion met by the State but there are many outliers.

The question about what the State should do to combat harmful trends in health which depend on *individual decisions* is the area where political philosophy is most important. An example is rising obesity which is a major threat to health in the future in the UK. Childhood obesity is a particular problem and there is a strong link to deprivation with the State (the public) paying for the consequences. Relatively few people argue that the State has no role at all, but how far to go up the ladder of intervention is much more controversial.

In these more contested areas, there is a central role for *evidence* for a State public health intervention. Three things need to be kept in balance; the difficulty of the intervention including popular support/opposition, cost, time; the size of the health effect that will be achieved; the strength

of the evidence. The more difficult or unpopular an intervention is the stronger the evidence will need to be.

For those sceptical of that State's right to intervene for wider public health certain things make it more attractive. These include interventions which protect the vulnerable especially children, strong evidence, big effects, highly cost-effective interventions and ones which bring health benefits to the economy. Interventions which remove existing rights, reduce pleasures, expose citizens to the law, construct new barriers to trade or expand government make them less attractive.

Over this lecture we have considered the remarkable improvements in health which have many causes, but State prevention has played a major role. It outlined areas where the public expects the State to act, where it does not, and contested areas. The ability of the state to improve health by prevention is remarkable, provided it is exercised under democratic control in a way the public approves of.