BBVsim
an agent based computer model of blood-borne virus epidemics amongst injectors
I will

• explain what an agent based model is
• talk about why we built the simulation
• show you what it does and how you can use it
• and
• leave time for discussion
the bbvsim

- is an ‘agent based programme’;
- written with a programme called **Netlogo** which creates a virtual world...
In the BBV sim world, every hour each agent is, or isn’t, in a position to inject. In order of preference they use:

- their own new syringe
- their own used syringe
- friends’ new syringe
- friends used syringe
- if no equipment: postpone use, or use by another route.
BBV transmission

• If the syringe is infected with HCV there’s an 80% chance they’ll be come HCV+ve; and
• if the syringe is infected with HIV there’s a 20% chance they’ll become HIV +ve
so, over time, the things that will determine if and when people catch viruses in the sim, as in the real world are:

• whether they have enough injecting equipment
• whether they’re prepared to share
• how many different individuals they share with
• whether those individuals are infected with a bbv
and those are the things you can control...
so with these parameters, press run and
at 1 month
6 months
NSP reach drops to 5%
the picture at 1 year
ways to use the sim

• run simulations for people, showing how (for instance) high baseline infection rates, and NSP reach affect viral spread

• let people see the impact of different approaches – without hurting anyone

• use as a starting point for building simulations that work better for your environment, and to drive research questions
Welcome to the site for the computer model of blood borne virus epidemics amongst injecting drug users known as the blood borne virus simulator or ‘BBVsims’ for short.

The model attempts to simulate the impact of the different key variables which are known to affect the rate at which HIV and hepatitis C epidemics spread amongst injecting drug users.

When you click ‘setup’ the model allows you to create a virtual world at a point in time with different levels of injecting drug use, needle and syringe programme coverage, pre-existing levels of HIV and hepatitis C etc., and then when you click ‘run’ the model sets off and illustrates what might happen over time.

Because you are in control of the variables, you are able to run the model to illustrate the effects of decisions by health service commissioners and providers as well as changes in the population of drug users, and the drugs they take.

Important note
BBVsims is not necessarily an accurate predictor of the future: blood borne virus epidemics are complex, affected by many factors and are therefore difficult to fully understand let alone model in a computer programme. However, it does provide an insight into the factors that can slow - or accelerate - the spread of viruses amongst injectors, and aims to be a useful educational tool to help all those interested in drug use, and the response to it, better understand blood borne virus spread, and it’s prevention.

To download the model onto your computer, click here.
To see a set of exercises you can run on the model, click here.
To read the assumptions that underlie the model when it’s running, click here.
It can’t predict the future, but we hope that the sim will help

• people understand that risk isn’t all about choice, it’s also about networks, maths, and environment

• workers, service providers, policy makers, and drug users understand the link between their behaviour and blood borne viruses
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Grey background shows sharing networks.