Developing and testing a Clinical Decision Support application to prompt blood-borne virus testing, Part 1

PURPOSE OF THE STUDY

The aim of the project is to investigate what type of electronic patient record (EPR) alert, indicating that a patient attending a GP surgery is at higher risk of blood-borne virus (BBV) infection, is most effective in prompting clinicians to order BBV tests. The 3 BBVs are HIV, hepatitis B and hepatitis C. Significant proportions of patients with these infections are undiagnosed and present late with higher morbidity and mortality. BBV_TP1 is a software application designed to identify patients at higher risk of BBV infections who have not been tested for BBVs.

WHAT DO I NEED TO DO?

You will be asked to fill in an online survey in SurveyMonkey. This will take between 15-20 minutes and will provide 10 short patient scenarios after which you will be asked whether you would test the patient for BBVs. You will also be asked to answer a few further questions on BBV testing.

ARE THERE ANY RISKS IN PARTICIPATING?

It is expected that participating in this project will not cause any significant stress or emotional discomfort. This project and questionnaire have been reviewed by the Teesside University ethics committee.

CONFIDENTIALITY

Participation will be anonymous. You will not be asked to record your name for the purpose of the study; however, we will ask for information on your age, gender, profession and place of work

FREEDOM TO REFUSE OR WITHDRAW

Participation in all aspects of this project is entirely voluntary. You may withdraw from the study at any point whilst or after completing the questionnaires, and you can withdraw the information you provide within four weeks after taking part. If you wish to withdraw from the study, please contact either of the lead researchers (Professor Paul van Schaik or Dr David Chadwick).

WHO DO I CONTACT IF I HAVE ANY QUESTIONS?

If you have any questions relating to the project, please contact either of the
Developing and testing a Clinical Decision Support application to prompt blood-borne virus testing, Part 1

1. I have read and understood the 'Information Page' for this study.
2. The nature and possible effects of the study have been explained to me.
3. I understand that the study involves the following procedures:
   Completion of survey on BBV testing.
4. I understand that my participation is entirely voluntary and that I can withdraw from the study at any time, without prejudice.
5. I understand that all research data will be securely stored on Teesside University premises for a period of 2 years and then destroyed.
6. Any questions that I have asked have been answered to my satisfaction.
7. I agree that research data gathered for the study may be published provided that I cannot be identified as a participant.
8. I understand that my identity will be kept confidential and that any information I supply to the researcher(s) will be used only for the purposes of the research.
9. I agree to participate in this investigation and understand that I may withdraw my information within four weeks after taking part. If you wish to withdraw from the study, please contact either of the lead researchers Professor Paul van Schaik (P.Van-Schaik@tees.ac.uk) or Dr David Chadwick (Davidr.chadwick@nhs.net)
Do you agree to the above terms? By clicking Yes, you consent that you are willing to answer the questions in the survey. You must click Yes in order to take the survey.

- Yes
- No

1. Please answer the demographic questions on the next page
2. During the survey, where we are exploring different scenarios, please assume that all hypothetical patients that will be presented are patients from your practice
3. Please note an answer to all questions are mandatory and once answered you cannot return to a previous page
4. To enable you to view the images clearly, please set your magnification/zooming to 133% if using Firefox and 125% if using Chrome, Internet Explorer or Edge

Demographic Questions

Gender
- Male
- Female
- Other (please specify)

Age

Current job role as a healthcare worker
Patient 1

Steven is a 30 year old sales executive with a history of well-controlled asthma. He's come today for a review of his asthma and is generally fit and healthy.

The following alert appears on SystmOne. How would you respond to the alert?

Would you like to request BBV tests? (select 'No' if not required or already requested)

- Yes
- No
- More Information on risks (this provides further information at the bottom of the alert)
Patient 1

Steven is a 30 year old sales executive with a history of well-controlled asthma. He's come today for a review of his asthma and is generally fit and healthy.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

Improving blood-borne virus (BBV) testing in primary care
Patient 1

Steven is a 30 year old sales executive with a history of well-controlled asthma. He's come today for a review of his asthma and is generally fit and healthy.

The alert now has additional information on risk factors.

Would you like to request BBV testing? (Select Y/N if not required or already requested)
- Yes
- No

Improving blood-borne virus (BBV) testing in primary care
Patient 1
Steven is a 30 year old sales executive with a history of well-controlled asthma. He's come today for a review of his asthma and is generally fit and healthy.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

Improving blood-borne virus (BBV) testing in primary care
Patient 2
Melanie is a 47 year old nurse, generally in good health, who has come today complaining of worsening migraines

The following alert appears on SystmOne. How would you respond to the alert?

Yes
No
More information on risks (this provides more information at the bottom of the alert)
Patient 2
Melanie is a 47 year old nurse, generally in good health, who has come today complaining of worsening migraines.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

Improving blood-borne virus (BBV) testing in primary care
Patient 2
Melanie is a 47 year old nurse, generally in good health, who has come today complaining of worsening migraines

The alert now has additional information on risk factors

Would you like to request BBV tests? (select “No” if not required or already requested)

- Yes
- No

Improving blood-borne virus (BBV) testing in primary care
Patient 2

Melanie is a 47 year old nurse, generally in good health, who has come today complaining of worsening migraines.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV’s elsewhere
- Patient doesn’t have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

NHS

Improving blood-borne virus (BBV) testing in primary care
George is a 74 year old retired factory worker with COPD and type 2 diabetes. He's come today as he has a cough and worsening shortness of breath.

The following alert appears on SystmOne. How would you respond to the alert?

- Yes
- No
- More information on risks (this provides more information at the bottom of the alert)

**NHS**

Improving blood-borne virus (BBV) testing in primary care
Patient 3

George is a 74 year old retired factory worker with COPD and type 2 diabetes. He's come today as he has a cough and worsening shortness of breath

Patient declined tests
Patient has been tested for BBV's elsewhere
Patient doesn't have capacity to consent for testing
Identified risks are insufficient to justify testing
Other (please specify)
Patient 3
George is a 74 year old retired factory worker with COPD and type 2 diabetes. He’s come today as he has a cough and worsening shortness of breath.

The alert now has additional information on risk factors.
Patient 3

George is a 74 year old retired factory worker with COPD and type 2 diabetes. He's come today as he has a cough and worsening shortness of breath.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)
Patient 4
Sandra is a 38 year old stay-at-home mum who suffers from IBS and menorrhagia. She's come today because of worsening menorrhagia.
The following alert appears on SystmOne. How would you respond to the alert?

- ○ Yes
- ○ No
- ○ More information on risks (this provides more information at the bottom of the alert)

**Improving blood-borne virus (BBV) testing in primary care**
Patient 4
Sandra is a 38 year old stay-at-home mum who suffers from IBS and fibromyalgia. She's come today because of worsening menorrhagia.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

NHS
Improving blood-borne virus (BBV) testing in primary care
Patient 4
Sandra is a 38 year old stay-at-home mum who suffers from IBS and fibromyalgia. She’s come today because of worsening menorrhagia.

The alert now has additional information on risk factors:

Clinical and/or lab test data suggest this patient is at higher risk of blood-borne virus (BBV) infection. Patient has not had tests for HIV, hepatitis B or hepatitis C in the last 12 months. BBV testing is recommended.

Would you like to request BBV tests? (select: ‘No’ if not required or already requested)

- Yes
- No

Risk assessment:
02.11.2024 Read code XE2y7 Infectious mononucleosis
Current residence in higher-prevalence area

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NHS

Improving blood-borne virus (BBV) testing in primary care
Sandra is a 38 year old stay-at-home mum who suffers from IBS and fibromyalgia. She’s come because of worsening menorrhagia.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV’s elsewhere
- Patient doesn’t have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

Improving blood-borne virus (BBV) testing in primary care
Patient 5
Gerry is a 59 year old office worker with hypertension who has come today as he's not tolerating his new antihypertensive medications well
The following alert appears on SystmOne. How would you respond to the alert?

- Yes
- No
- More information on risks (this provides more information at the bottom of the alert)

Improving blood-borne virus (BBV) testing in primary care
Patient 5

Gerry is a 59 year old office worker with hypertension who has come today as he's not tolerating his new hypertensive medications well.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

Improving blood-borne virus (BBV) testing in primary care
Patient 5

Gerry is a 59 year old office worker with hypertension who has come today as he’s not tolerating his new hypertensive medications well

The alert now has additional information on risk factors

Clinical and/or lab test data suggest this patient is at higher risk of blood-borne virus (BBV) infection. Patient has not had tests for HIV, hepatitis B or hepatitis C in the last 12 months. BBV testing is recommended.

Last tests for HIV, hepatitis B or hepatitis C:
- not tested in the past 5 years
BBV testing is likely to be cost-effective in patients such as this with identified risk factors.

Would you like to request BBV tests? (select ‘No’ if not required or already requested)

- Yes
- No

Risk assessment:
02.11.2016 Bland code X10076: pneumonia
02.11.2016 ALT 67 U/mL

Improving blood-borne virus (BBV) testing in primary care
Patient 5

Gerry is a 59 year old office worker with hypertension who has come today as he’s not tolerating his new antihypertensive medications well

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV’s elsewhere
- Patient doesn’t have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

Improving blood-borne virus (BBV) testing in primary care
Patient 6
Audrey is a 72 year old woman who rarely visits her GP and has little significant past history. She's come today as she's feeling more depressed than normal.

The following alert appears on SystmOne. How would you respond to the alert?

- Yes
- No
- More information on risks (this provides more information at the bottom of the alert)

Improving blood-borne virus (BBV) testing in primary care
Patient 6

Audrey is a 72 year old woman who rarely visits her GP and has little significant past history. She's come today as she's feeling more depressed than usual.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)
Patient 6

Audrey is a 72 year old woman who rarely visits her GP and has little significant past history. She’s come today as she’s feeling more depressed than usual.

The alert now has additional information on risk factors.

Would you like to request BBV tests? (select ‘Yes’ if not required or already requested)

- Yes
- No
Patient 6

Audrey is a 72 year old woman who rarely visits her GP and has little significant past history. She's come today as she's feeling more depressed than normal.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)
Patient 7

Magda is a 33 year old woman originally from Poland who is a hotel receptionist and rarely attends the practice. She has come seeking contraceptive advice

The following alert appears on SystmOne. How would you respond to the alert?

- Yes
- No
- More information on risks (this provides more information at the bottom of the alert)
Patient 7
Magda is a 33 year old woman originally from Poland who is a hotel receptionist and rarely attends the practice. She has come seeking contraceptive advice.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

Improving blood-borne virus (BBV) testing in primary care
Patient 7

Magda is a 33 year old woman originally from Poland who is a hotel receptionist and rarely attends the practice. She has come seeking contraceptive advice.

The alert now has additional information on risk factors:

Clinical and/or lab test data suggest this patient is at higher risk of blood-borne virus (BBV) infection. Patient has not had tests for HBV, hepatitis B or hepatitis C in the last 12 months. BBV testing is recommended.

BBV testing is cost-effective in populations where the prevalence is >1.5%

Would you like to request BBV tests?

- Yes
- No

Risk assessment

12.11.2016 Read code: V10096: CIN 2

Current residence in higher-prevalence area

Improving blood-borne virus (BBV) testing in primary care
Patient 7
Magda is a 33 year old woman originally from Poland who is a hotel receptionist and rarely attends the practice. She has come seeking contraceptive advice.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

Improving blood-borne virus (BBV) testing in primary care
Patient 8

Stuart is a 63 year old engineer with little significant past medical history. He has attended due to urinary frequency.

The following alert appears on SystmOne. How would you respond to the alert?

- Yes
- No
- More information on risks (this provides more information at the bottom of the alert)

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Improving blood-borne virus (BBV) testing in primary care
Patient 8

Stuart is a 63 year old engineer with little significant past medical history. He has attended due to urinary frequency.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV’s elsewhere
- Patient doesn’t have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)
Patient 8

Stuart is a 63 year old engineer with little significant past medical history. He has attended due to urinary frequency.

The alert now has additional information on risk factors.

Would you like to request BBV tests?

(select Yes if not required or already requested)

☐ Yes  ☐ No

Improving blood-borne virus (BBV) testing in primary care
Patient 8

Stuart is a 63 year old engineer with little significant past medical history. He has attended due to urinary frequency.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV's elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)
Patient 9

Hayley is a 19 year old college student with a history of asthma. She's come today as she's feeling tired all the time

The following alert appears on SystmOne. How would you respond to the alert?

- [ ] Yes
- [ ] No

Improving blood-borne virus (BBV) testing in primary care
Patient 9

Hayley is a 19 year old college student with a history of asthma. She's come today as she's feeling tired all the time.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBV’s elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)
Patient 10

John is a 44 year old HGV driver with type 2 diabetes. He’s come today for his annual diabetes review.

The following alert appears on SystmOne. How would you respond to the alert?

- Yes
- No

Improving blood-borne virus (BBV) testing in primary care
Patient 10

John is a 44 year old HGV driver with type 2 diabetes. He's come today for his annual diabetes review.

Give reasons for not requesting BBV tests

- Patient declined tests
- Patient has been tested for BBVs elsewhere
- Patient doesn't have capacity to consent for testing
- Identified risks are insufficient to justify testing
- Other (please specify)

Additional Questions

Improving blood-borne virus (BBV) testing in primary care

One question that has arisen is why this alert always recommends testing for all the BBVs. Another option to testing for all 3 BBVs is that there are several different alert recommendations. For example in a patient who only has risks for HIV, only an HIV test would be recommended, or in a patient who only has risks for viral hepatitis that only hepatitis B and C tests are recommended. Potential advantages of this system are reduced numbers of tests ordered and potentially less anxiety if HIV tests are not recommended. Disadvantages are that often patients have overlapping risks for all 3 viruses and only testing for one or two may mean missing some infections; also, this would make the system more complex with multiple different alert recommendations, with the potential for confusion amongst users.
Which alert recommendation would you prefer?

- Single test (for all BBV's)
- Multiple tests (i.e. several different alerts with different combinations of tests recommended)

Do you have any comments or suggestions in relation to this issue?

Another consideration for this system is the potential for the alert to add significant time pressure to consultations, given the need to discuss testing with patients.
On average, how much time do you think this alert will add to a consultation? (please indicate below in minutes; for 30 seconds please insert 0.5 etc)

I predict I would use the automated prompting for blood-borne virus-testing during my consultations with patients if such a prompting facility was introduced in my work

| Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|-------------------|----------|---------|-------|---------------|
|                   |          |         |       |               |

I oppose a potential change from the current working practice of no prompting for blood-borne virus-testing during consultation with patients to automated prompting for blood-borne virus-testing

| Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|-------------------|----------|---------|-------|---------------|
|                   |          |         |       |               |

Which of the following prompt options do you prefer

- 'A hard prompt': you have to answer the prompt regarding BBV testing before you can continue using ICE or SystmOne
- 'A soft prompt': you can answer the prompt regarding BBV testing or otherwise ignore and continue using ICE or SystmOne

NHS Improving blood-borne virus (BBV) testing in primary care

Suppressing Repeat Alerts
Another anticipated consideration for this alert is its potential to keep on being triggered, even when a clinician has decided not to test or the patient has refused a test. On the other hand it is possible the patient may develop additional risk factors subsequently which make testing a higher priority. In order to ensure the alert doesn't keep on being triggered inappropriately please answer the following two questions.

When a clinician has decided not to order the test, for how long afterwards should the alert be suppressed?

- 6 months
- 1 year
- 2 years
- 5 years
- Permanently

When a patient has refused the test, for how long afterwards should the alert be suppressed?

- 6 months
- 1 year
- 2 years
- 5 years
- Permanently

Dear participant, please answer the following questions for registration purposes. This information is needed, so you can be reimbursed for your time completing the study.

What is your first name (e.g. John)?

What is your second name (e.g. Smith)?

What is the name of your General Practice?
End of survey - thank you for completing the study

The data from your responses will be used for analysis and all information provided by you will be treated in strict confidence.

You can withdraw the information you provide within four weeks after taking part. If you wish to withdraw from the study, please contact either of the lead researchers:

Professor Paul van Schaik, Professor of Psychology, School of Social Sciences, Humanities and Law, Teesside University. P.Van-Schaik@tees.ac.uk

Dr David Chadwick, Consultant in Infectious Diseases, The James Cook University Hospital, Middlesbrough TS4 3BW. Daviddr.chadwick@nhs.net