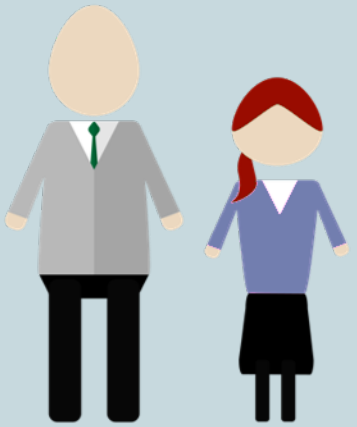
Case scenario 6 – Margaret
Part 1

Margaret and her partner attended the antenatal clinic following a high chance result from the Combined test.



Margaret is 29yrs old with dichorionic diamniotic twins. This is a spontaneous pregnancy after trying to conceive for 4 years.

Margaret is informed of her results:

- Twin 1 risk ratio of 1 in 28 of T21 (NT 3.4mm)
- Twin 2 risk ratio of 1 in 474 of T21 (NT 2.2mm)

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Are there any maternal contraindications to NIPT screening for this patient?

a) Yes

b) No

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Answer

a) No

- ✓ From 10 weeks gestation
- ✓ Singleton or twin pregnancies
- ✓ IVF, donor egg or surrogate pregnancies

Additional note

PHE are evaluating the roll out of NIPT for singleton pregnancies only.

NIPT has not been validated for Twin pregnancies. One twin specific systematic review (Gil et al 2017) reported a reduction in the specificity and sensitivity for cfDNA screening in DCDA twins.

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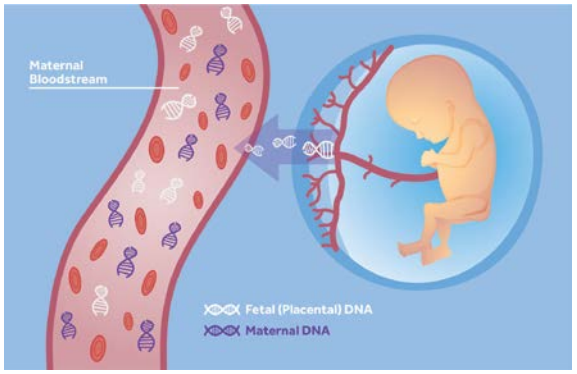
What is the sensitivity and specificity for NIPT screening in this scenario?

a) >99%

b) >85%

c) >95%

d) >90%



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Answer

c) >95%

Additional note

For identical twins, the sensitivity and specificity is that of a singleton pregnancy

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What are the limitations of screening for DCDA twins? Choose one or more statements

a) NIPT can only screen for trisomy 21 in a twin pregnancy

b) NIPT cannot distinguish between twins, therefore the result would be for both babies, and a high chance would indicate an invasive for both, unless there is a structural indication for one rather than both

c) High contributions of cf-DNA from an unaffected twin and low contributions from an affected twin may cause an incorrect result - false negative

d) All of the above

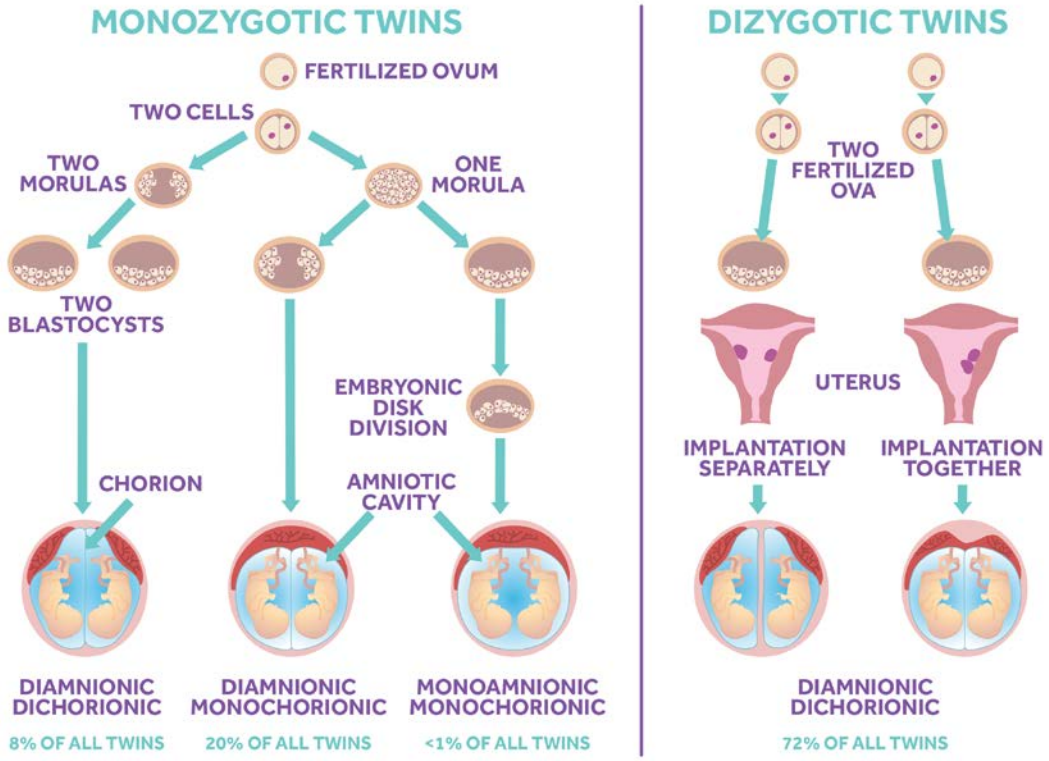
Answer

b) NIPT cannot distinguish between twins, therefore the result would be for both babies, and a high chance would indicate an invasive for both, unless there is a structural indication for one rather than both

c) High contributions of cell free DNA from an unaffected twin and low contributions from an affected twin may cause an incorrect result - false negative (*hence the 95% sensitivity and specificity)*.

True or False?

NIPT is the most sensitive screening test available for twin pregnancies



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Answer

True

Additional note

A validation study, although small reports that NIPT is the most sensitive screening test available.

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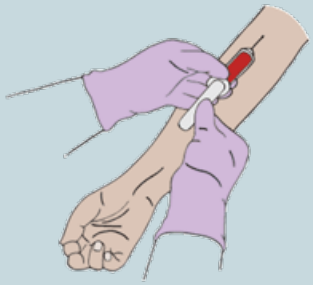
Case scenario 6 – Margaret Part 2

Margaret decides to have NIPT. The couple request sex determination to be added to the test.



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Can sex determination be offered for DCDA twins?

a) Yes

b) No

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Answer

b) No

Additional note

This is a DCDA pregnancy - sex determination cannot be offered.

Why is sex determination discouraged?

a) The sensitivity and specificity is < 90%

b) Sex aneuploidy screening can cause an increase in unnecessary invasive procedures

c) There are concerns that using cfDNA tests for sex determination in early pregnancy can lead to sex-selective termination

d) All of the above

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Answer

c) There are concerns that using cfDNA tests for sex determination in early pregnancy can lead to sex-selective termination

Additional note

- *DOH (2015) have stated that termination on grounds of fetal sex is illegal. This is not applicable for parents with inherited genetic conditions-such as X-linked conditions. Those patients should receive genetic counselling prior to NIPT.*
- *Sex determination may also result in increased false positive results due to suspected sex aneuploidy cfDNA results. This will not occur with the SAFE test, which does not examine or report on sex aneuplodies.*

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Case scenario 6 – Margaret Part 3

The NIPT result is 1 in 28,757 for T21

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True or False?

This is a low chance result.

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Answer

a) True

Additional note

This is a low chance result. The patient should be informed that this is a screening test with limitations.