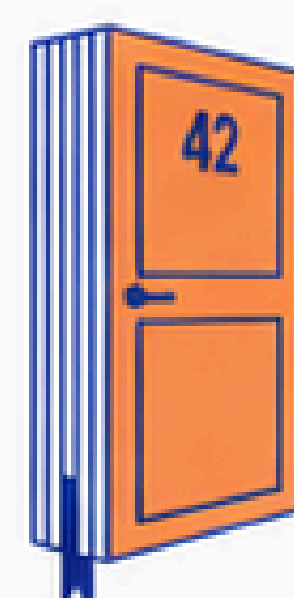


PEARSON EDEXCEL GCSE HISTORY

MEDICINE IN MODERN BRITAIN

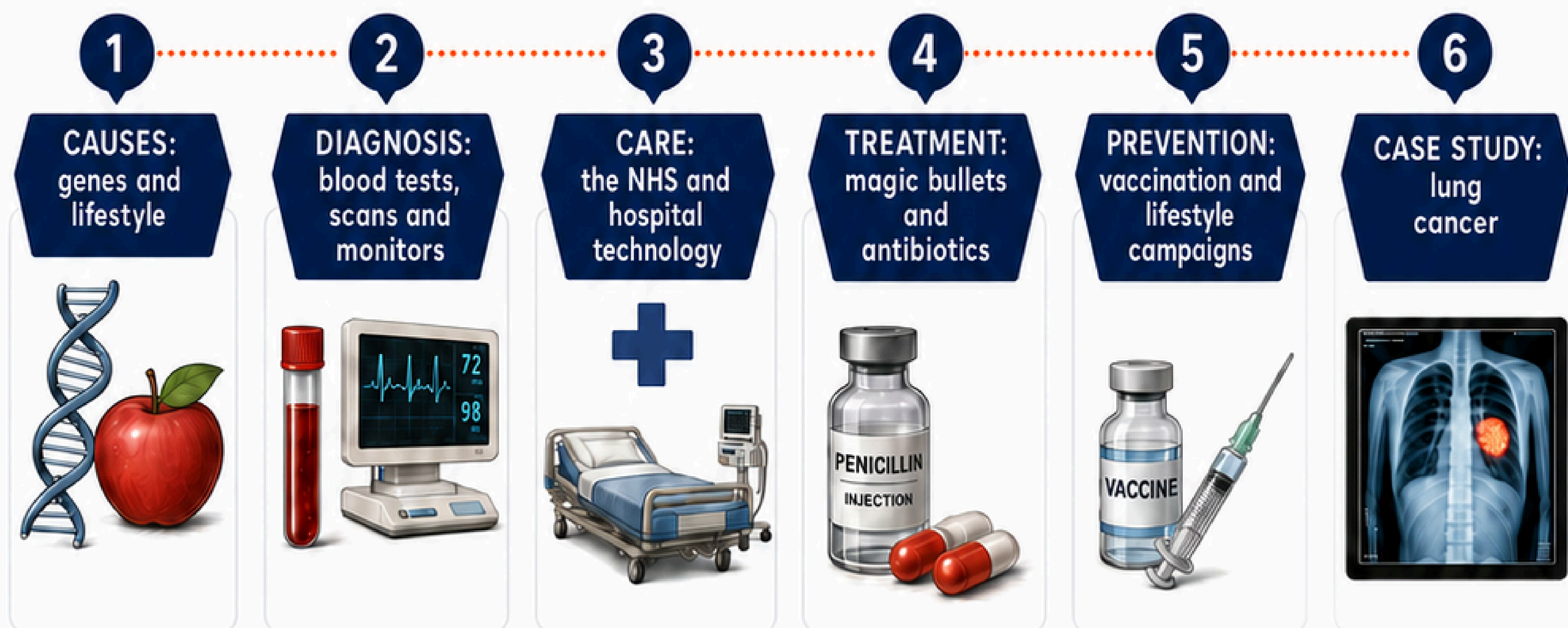
c1900–present

TEACHER ANSWER BOOKLET



OUR LEARNING JOURNEY

How did ideas, diagnosis, treatment and prevention change after 1900?



STARTING POINT

- > Which development do you think changed medicine most?
Give one reason.

The NHS, because treatment became generally free at the point of use and available according to clinical need.



KEY TERMS

- > **genetic factor** — DNA or an inherited/acquired variant that affects risk
- > **lifestyle factor** — behaviour such as smoking, diet or activity that affects risk
- > **diagnosis** — identifying a condition from evidence
- > **treatment** — action to cure, control or relieve illness
- > **prevention** — action to reduce disease before treatment is needed.

CIRCLE YOUR CONFIDENCE NOW.

CAUSES

1 2 3 4 5

DIAGNOSIS

1 2 3 4 5

TREATMENT

1 2 3 4 5

PREVENTION

1 2 3 4 5

1 Not yet

2 Getting there

3 Secure

4 Confident

5 Really confident

Answers will vary – use as a baseline.

Germ theory remained important, but new evidence widened explanations after 1900.

GENETIC FACTORS



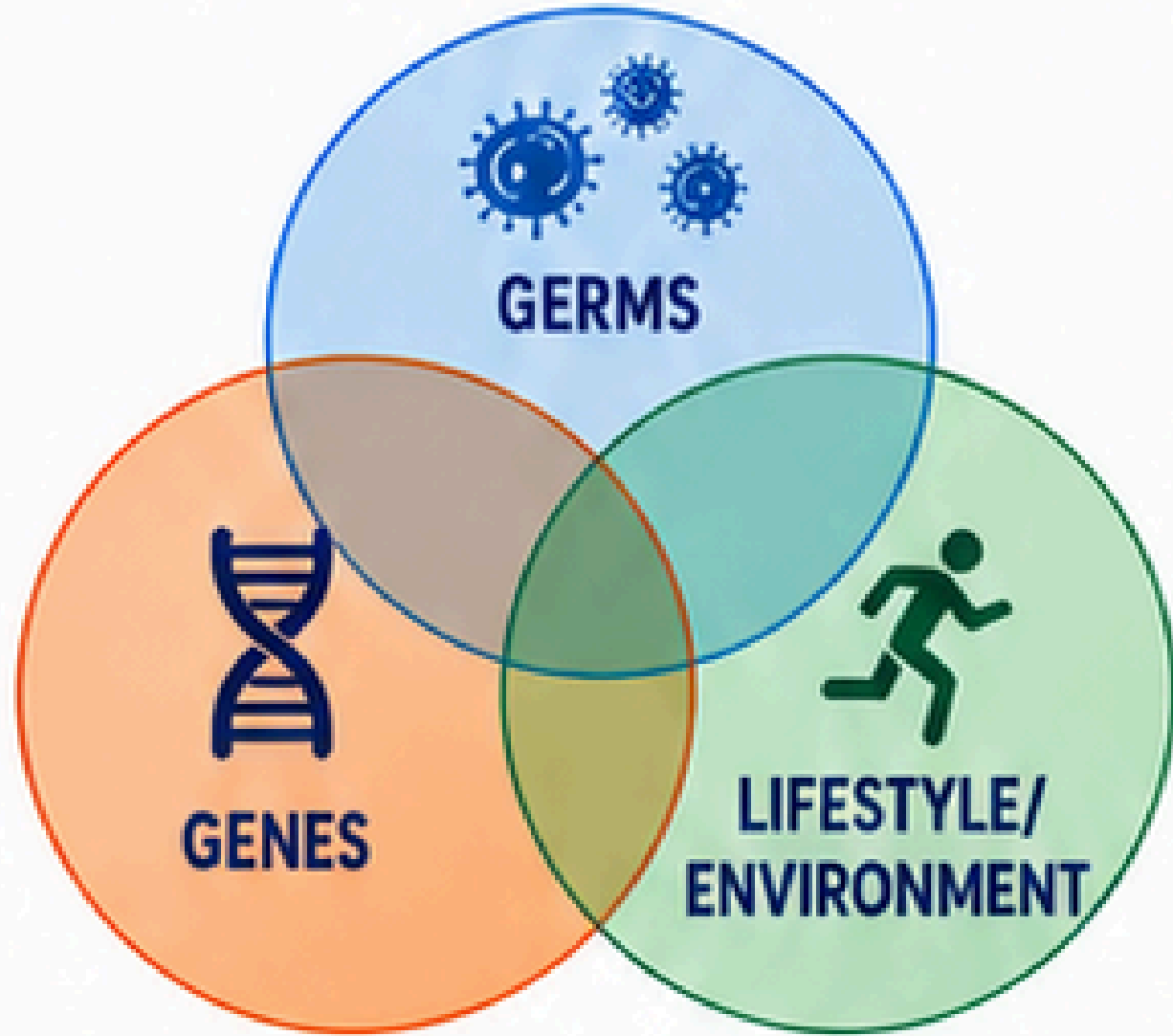
In 1953, Watson and Crick published their DNA model, using evidence including Rosalind Franklin’s X-ray work. Later research linked inherited genes to some diseases.

LIFESTYLE FACTORS



In 1954, Doll and Hill published strong evidence linking smoking to lung cancer. Diet, alcohol and exercise were also increasingly linked to disease.

INTERACTION



Germs still explained infectious disease. Genes, lifestyle and environment could combine to affect risk.



COMPARE THE PERIODS

Use the information above to complete the table below.

c1700–c1900	c1900–present
Main explanation	New explanations
1 Germ theory linked microbes to infectious disease.	1 Genetic, lifestyle and environmental evidence explained additional risks.
2	2
3	3
4	4

One way ideas were different was...

After 1900 explanations widened beyond microbes, although germ theory remained important.

★ CHALLENGE: Why did genetic and lifestyle explanations add to, rather than replace, germ theory?

They explained different kinds of disease and risk; they did not disprove that microbes cause infection.

After 1900, laboratory science widened explanations of disease beyond microbes.

1953: DNA MODEL



Watson and Crick published a DNA model using evidence including Rosalind Franklin's X-ray work.

1990–2003: HUMAN GENOME PROJECT



International scientists mapped and sequenced the human genome, helping identify genes linked to disease.

CHANGE AND CONTINUITY



Genetic evidence explained inherited risk while germ theory still explained infectious disease.



WHY DID IDEAS CHANGE?

Write A, B, C or D beside each factor. Use each letter once.

> Individuals

A

> Science and technology

B

> Teamwork

C

> Government funding

D

A

Franklin's X-ray images helped reveal DNA's structure.

B

Computers made it possible to analyse huge amounts of genetic data.

C

Researchers in many countries shared findings.

D

Public funding supported the Human Genome Project.

The most important factor was... because...

Science and technology was most important because X-ray methods and computers made new genetic evidence possible.



CHALLENGE: How far did genetic explanations replace earlier ideas about disease?

Only partly. Genetic explanations added inherited risk, while germ theory continued to explain infectious disease.

After 1900, statistical studies helped link behaviour to patterns of disease.

1948: RESEARCH BEGINS

Doll and Hill investigated rising lung-cancer deaths and looked for possible causes.



1950: CASE-CONTROL STUDY

Patients with lung cancer were much more likely to have smoked than patients without lung cancer.



1951–54: DOCTORS STUDY

A long-term study followed over 40,000 British doctors, comparing smokers and non-smokers. The first results were published in 1954.

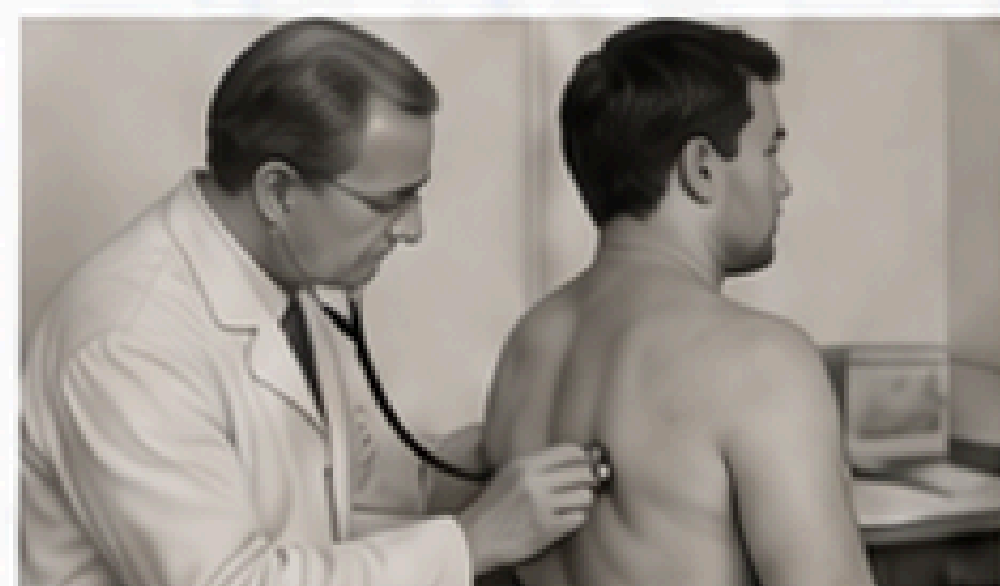


1962: PUBLIC WARNING

The Royal College of Physicians reported that smoking caused lung cancer and other diseases.



EARLIER APPROACH



Earlier diagnosis often relied on one patient's symptoms and the doctor's observations.

MODERN APPROACH



Modern researchers compared large groups of people over time to find patterns and establish cause.



TRACE THE CHANGE

The cards below show key events, but they are in the wrong order. Write the correct letter (A, B, C or D) in the boxes 1–4 to put them in chronological order.

A Royal College of Physicians public warning (1962)

B Doll and Hill begin research (1948)

C Case-control study shows link to smoking (1950)

D Doctors study begins (1951–54)

1 B

2 C

3 D

4 A



DOLL AND HILL'S IMPACT

Doll and Hill changed medicine because...

Large studies supplied convincing evidence that smoking caused lung cancer, shaping warnings and prevention.



CHALLENGE: Why was a long-term study more convincing than a single observation?

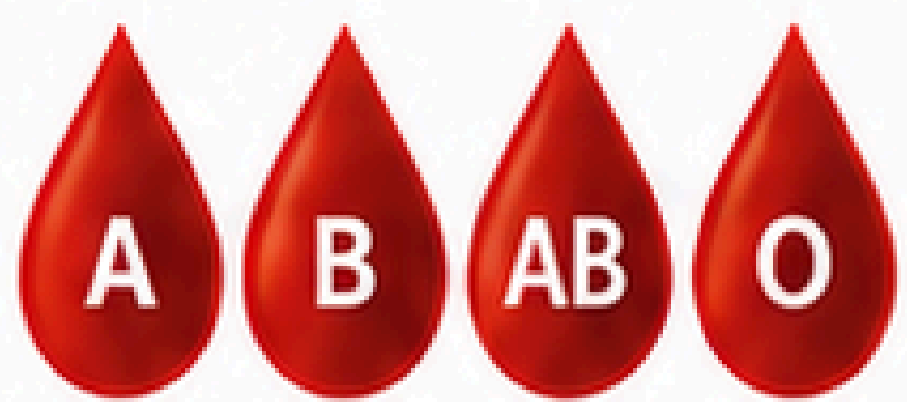
It compared many people over time, so a repeated pattern was stronger than one patient's experience.

Laboratory tests gave doctors evidence that symptoms alone could not provide.

1901: BLOOD GROUPS



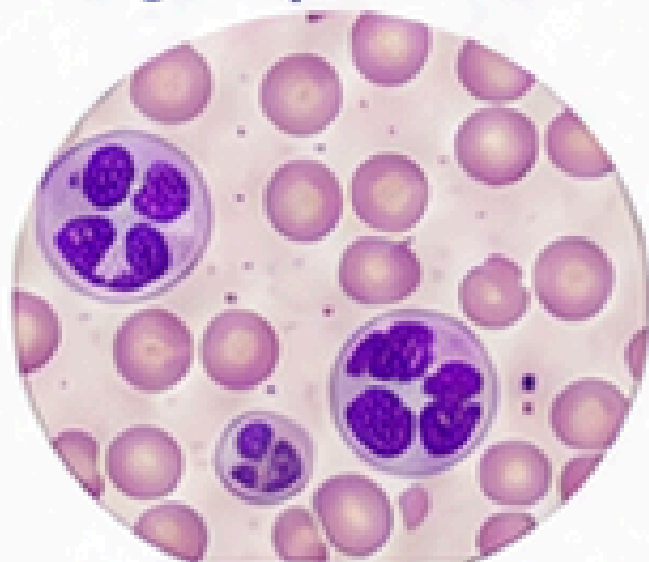
Karl Landsteiner identified ABO blood groups, making safer matching possible.



EARLY 1900s: LABORATORY TESTING



Hospitals used cells and chemicals as evidence of infection, anaemia and organ problems.



1950s–70s: AUTOMATION



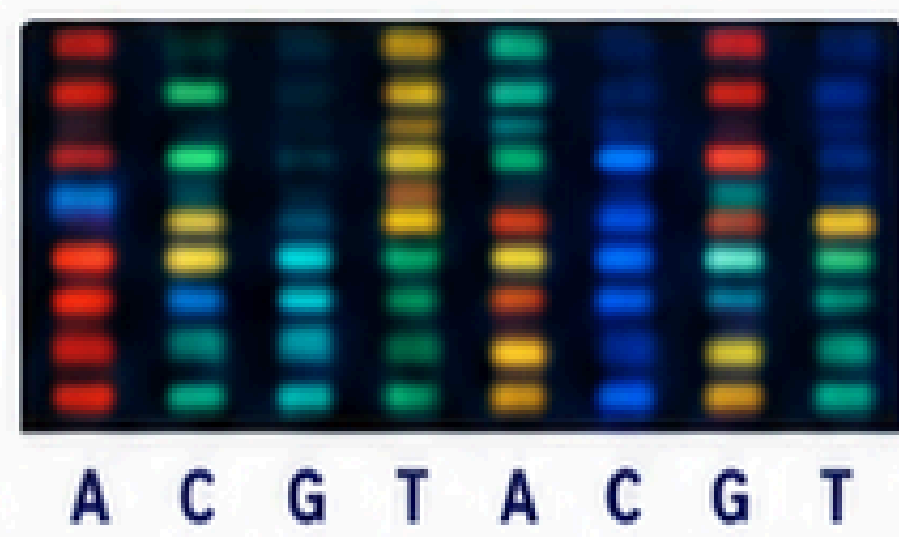
Machines counted cells and processed samples quickly, allowing more tests to be carried out.



1990s–PRESENT: GENETIC TESTING



DNA analysis identified some inherited conditions and risks.



CHANGE FROM EARLIER MEDICINE

How did the use of blood tests change after 1900? Complete the boxes below.

c1700 – c1900

Doctors mainly used visible symptoms and physical examination.

Diagnosis was less precise and often depended on what doctors could see, feel or hear.

c1900 – present

Tests supplied measurable evidence from inside the body.

Tests could confirm or challenge a diagnosis and detect problems earlier.



YOUR TURN

Explain one way blood tests improved diagnosis.

Blood tests gave measurable evidence of infection, anaemia, organ function or inherited risk.



CHALLENGE: Why did new tests support, rather than replace, a doctor's judgement?

Results still need interpretation alongside symptoms, examination and other evidence.

New imaging let doctors investigate inside the living body with increasing detail.

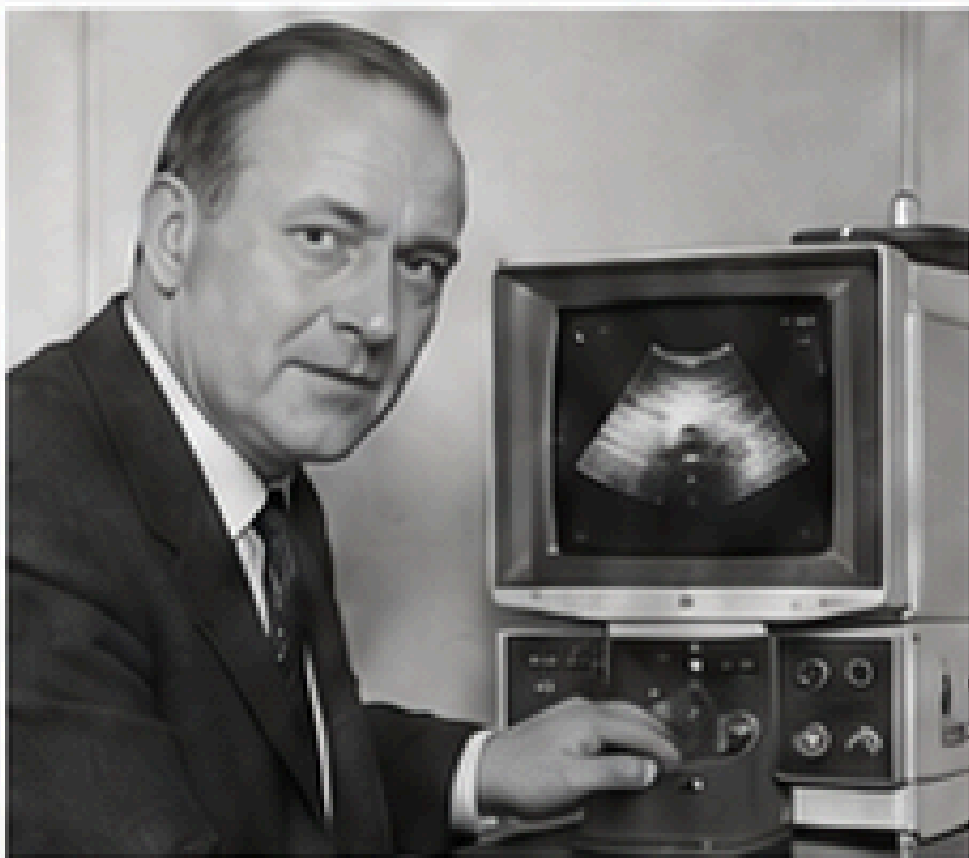
1895: X-RAYS



Wilhelm Röntgen discovered X-rays.

X-rays allowed bones and some internal structures to be seen without surgery. Hospitals began to adopt X-ray machines after 1900.

1958: ULTRASOUND



Ian Donald pioneered medical ultrasound in Glasgow.

Ultrasound used high-frequency sound waves to create images, making it safer and more suitable for repeated use.

1971: CT SCAN



Godfrey Hounsfield developed the first practical CT scanner.

CT (computed tomography) combined many X-rays to create detailed cross-section images of the body, especially the brain.

1970s: MRI



Paul Lauterbur and Peter Mansfield helped develop MRI.

MRI used strong magnetic fields and radio waves to produce detailed images of soft tissues, such as the brain, muscles and organs.

IMPACT

Images became faster, clearer and more useful for early diagnosis and precise treatment.

COMPARE THE ADVANCES

Complete the table below to compare the different scans.

Scan	New evidence it provided	One limit
X-ray	bones and fractures	radiation; limited soft tissue
Ultrasound	real-time images, including pregnancy	less detailed; operator dependent
CT scan	cross-sections; internal bleeding or tumours	radiation and cost
MRI	detailed soft tissue	expensive, slower, metal restrictions

JUDGEMENT

Which scan was the greatest turning point? Compare at least two using date, impact, access and limits.

CT was a turning point from 1971 because Hounsfield's scanner produced detailed cross-sections, improving diagnosis and planning. MRI later gave better soft-tissue detail but cost more.

CHALLENGE

Why did X-rays remain important after later scans were invented?

X-rays remained quick, widely available and useful for bones and chests.

The NHS transformed access to care, but it developed from earlier hospitals, doctors and public services.



BEFORE 1948

Provision was mixed: voluntary and municipal hospitals, GPs, insurance and charity. Access and cost varied.



1942: BEVERIDGE REPORT

The report proposed wider social security and helped build support for comprehensive health services.



1946: NHS ACT

The National Health Service Act created the legal framework for the NHS in England and Wales. Separate legislation established the Scottish service.



5 JULY 1948

NHS services launched across Britain under the separate national systems. Care was organised nationally and generally free at the point of use.

AI-generated historical reconstructions



BUILD THE CHRONOLOGY

Put the cards in chronological order. Write A, B, C or D in boxes 1–4.

A NHS services begin

B National Health Service Act

C Beveridge Report

D mixed provision and unequal access

1

D

2

C

3

B

4

A



CHANGE AND CONTINUITY

One major change in access after 1948:

Care became generally free at the point of use, widening access according to clinical need rather than ability to pay.

One feature of care that continued after 1948:

Existing hospitals, GPs, staff and medical knowledge continued within the new services; private medicine also remained.



CHALLENGE: Why is it inaccurate to say that the NHS created every part of modern healthcare from nothing?

The NHS united and expanded services that already existed. Separate legislation created the systems in England and Wales and in Scotland; it did not invent hospitals or doctors in 1948.

The NHS widened access to care, but change was not instant or complete.



ACCESS

Care was generally free at the point of use. Treatment depended more on clinical need and less on ability to pay.



PUBLIC FUNDING

GPs, hospitals and other services became part of a publicly funded national system, although organisation remained complex.



PREVENTION

The NHS helped deliver vaccination, screening, maternity care and health advice to large populations.



LIMITS AND CONTINUITIES

Demand, waiting times, staff shortages and regional differences continued. Private medicine also remained.



WEIGH THE EVIDENCE

For each statement, tick: major change, limited change, or both. Then justify one choice.

	MAJOR CHANGE	LIMITED CHANGE	BOTH
More people could seek care without paying at the appointment.	✓		
Access and outcomes became equal everywhere.		✓	
National programmes could reach large populations.	✓		
Older hospitals and staff remained essential.		✓	

Justification: *Free care at the point of use substantially widened access, and national programmes reached more people. However, regional differences, waiting times and unequal outcomes remained.*

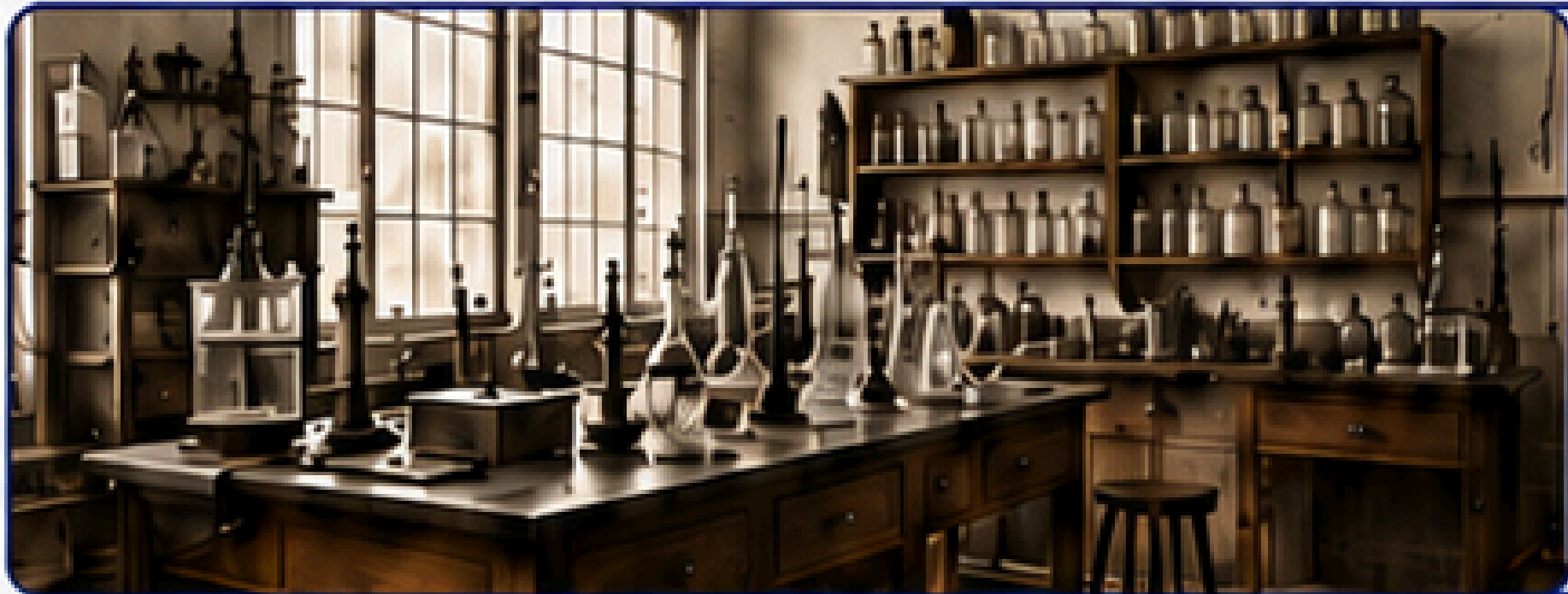


CHALLENGE: Overall, how far did the NHS transform care and treatment after 1948?

The NHS transformed access and coordination to a great extent, but change was not complete because demand, staffing pressures, older facilities and private medicine continued.



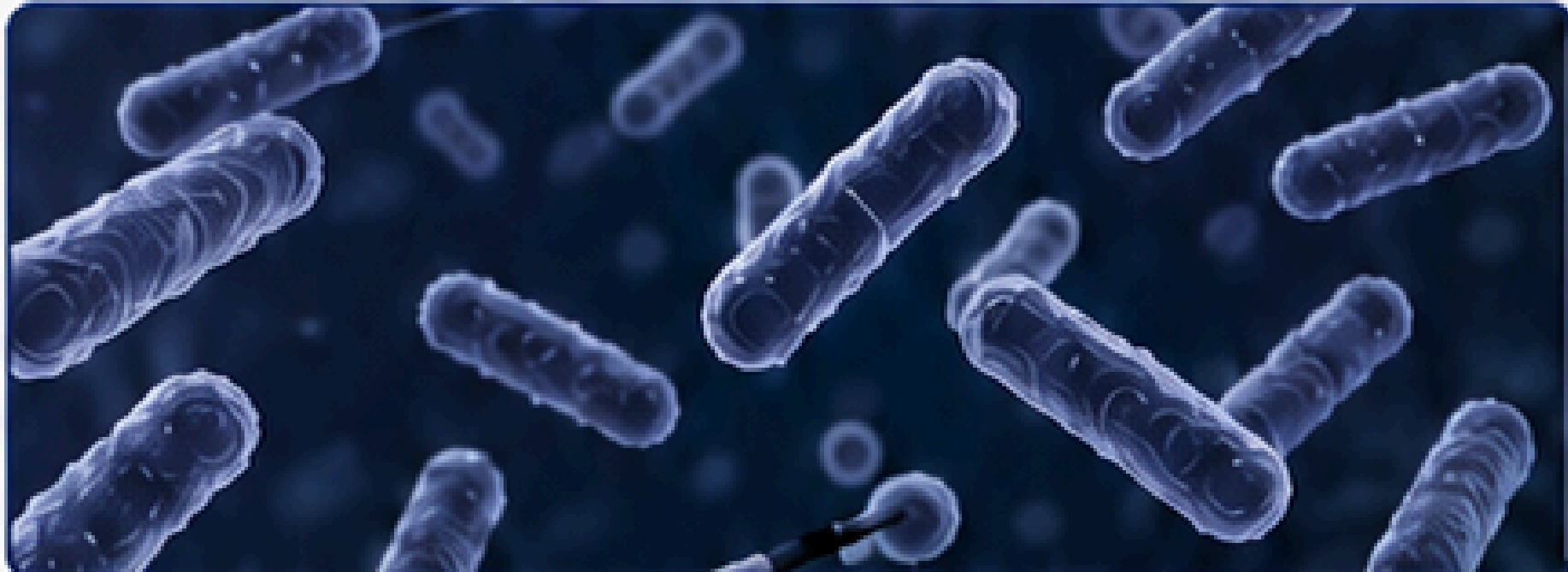
A ‘magic bullet’ is designed to target a disease-causing organism while causing less harm to the patient.



AI-generated historical reconstruction

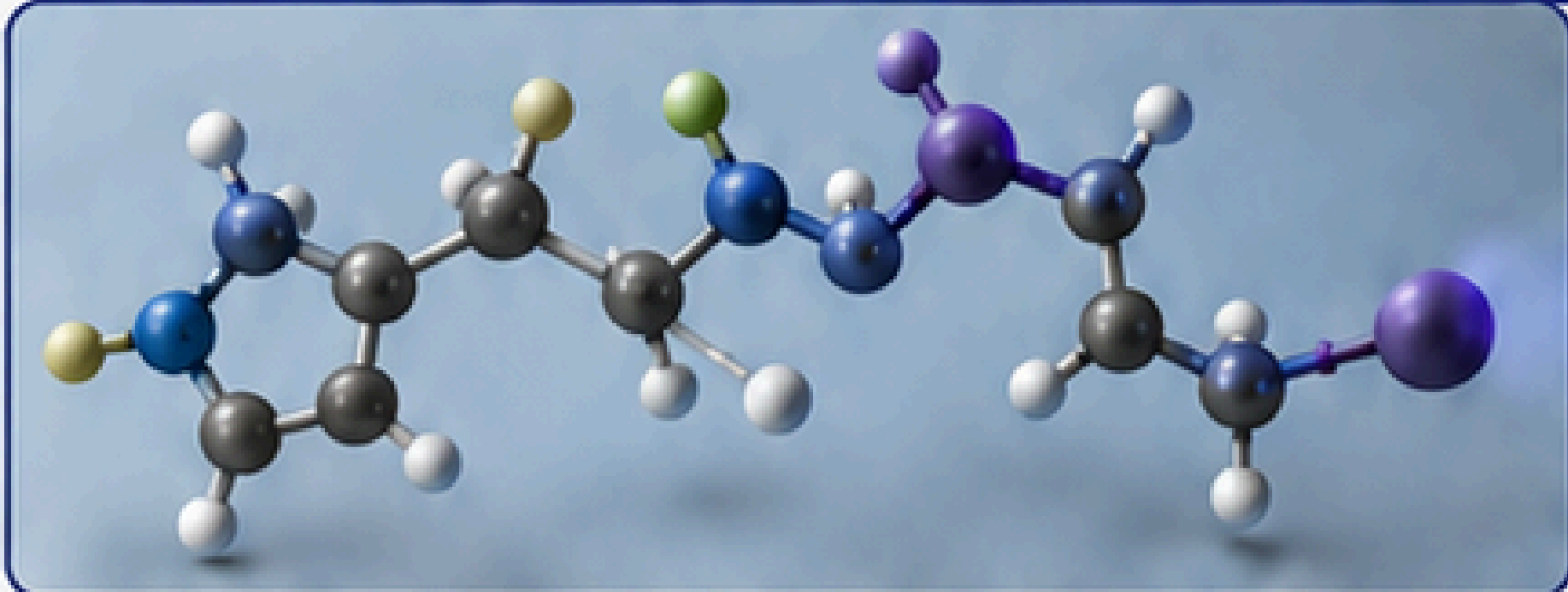
PAUL EHRLICH

Ehrlich argued that chemicals could be designed to attack a specific pathogen.



COMPOUND 606

In 1909, Ehrlich’s team found that compound 606 acted against the bacterium that causes syphilis.



SALVARSAN

Marketed from 1910, Salvarsan became the first widely used chemical treatment developed as a magic bullet.



LIMITS

It was toxic, difficult to administer and targeted only one infection. It was not a cure for all disease.



TEST THE CLAIM

Claim: ‘Salvarsan was a complete medical breakthrough.’

Sort each point into SUPPORTS or CHALLENGES, then write a balanced judgement.

- targeted the cause of syphilis
- developed through laboratory testing
- could cause serious side-effects
- difficult to administer
- worked against only one infection

SUPPORTS	CHALLENGES
- targeted the cause of syphilis - developed through laboratory testing	- could cause serious side-effects - difficult to administer - worked against only one infection

Judgement: Salvarsan was an important targeted treatment, but not a complete breakthrough because it was toxic, difficult to use and treated only syphilis.



CHALLENGE: Why were laboratory science and repeated testing essential to the development of magic bullets?

Laboratory work identified promising chemicals; repeated tests checked effectiveness, safety and dosage and allowed failures to be rejected.

Fleming discovered antibacterial action; he did not turn penicillin into a usable mass-produced medicine.

1 CONTAMINATION

2 OBSERVATION

3 CONCLUSION

4 LIMIT

A *Penicillium* mould accidentally contaminated a dish containing staphylococci bacteria.



Fleming noticed a clear zone where bacteria had not grown close to the mould.



He showed that the mould released a substance that inhibited or killed some bacteria.



Fleming could not purify enough stable penicillin or develop it into a practical treatment.



WHAT DID THE EVIDENCE SHOW?

Sort each statement into OBSERVED, CONCLUDED or NOT YET PROVED.

- a clear zone surrounded the mould
- some bacteria were inhibited
- penicillin was safe in humans
- penicillin could be mass-produced
- the mould released an antibacterial substance
- bacteria grew elsewhere on the dish

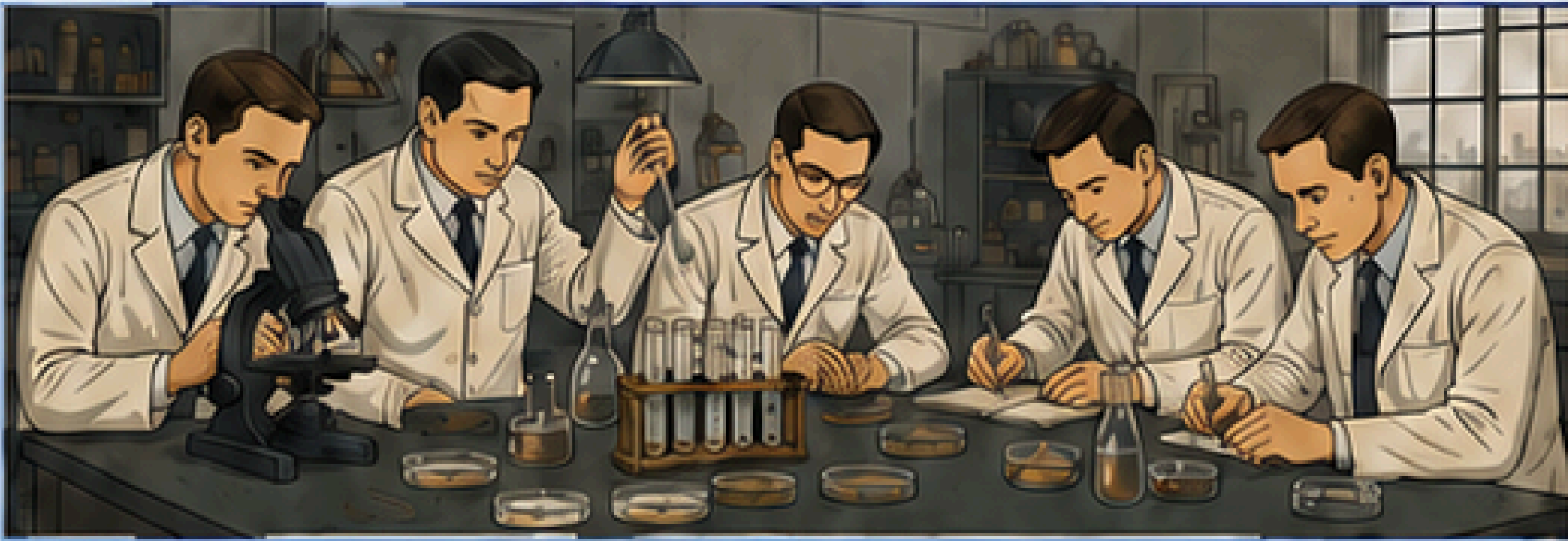
OBSERVED	CONCLUDED	NOT YET PROVED
- a clear zone surrounded the mould - bacteria grew elsewhere on the dish	- some bacteria were inhibited - the mould released an antibacterial substance	- penicillin was safe in humans - penicillin could be mass-produced



CHALLENGE: Why was discovery alone not enough to transform medical treatment?

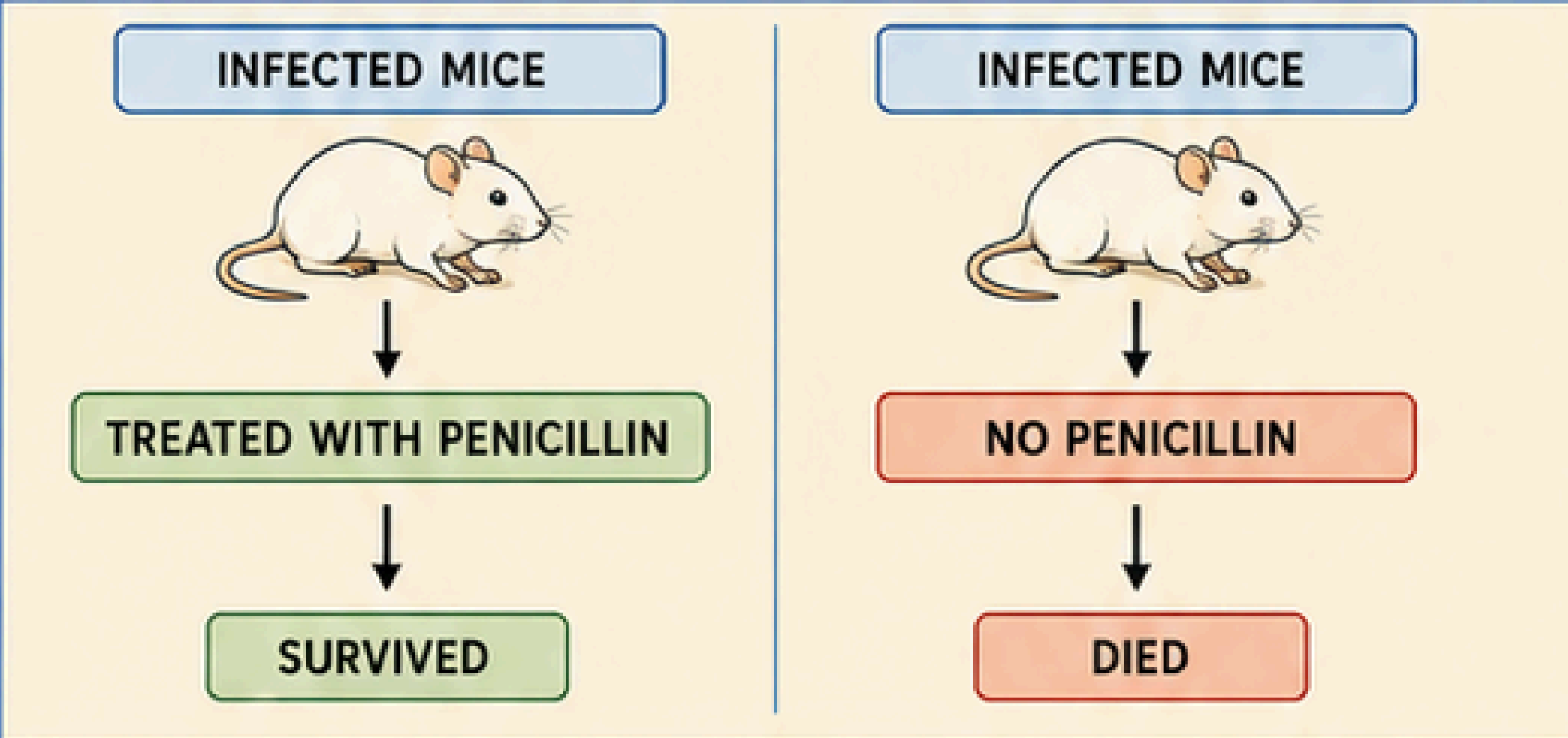
Penicillin still had to be purified, tested for safety and dosage, produced reliably in large quantities and delivered to patients.

An Oxford team turned Fleming’s observation into a tested medicine that could be produced at scale.



1939: OXFORD TEAM

Howard Florey and Ernst Chain led research with a wider team, including Norman Heatley, to extract and purify penicillin.



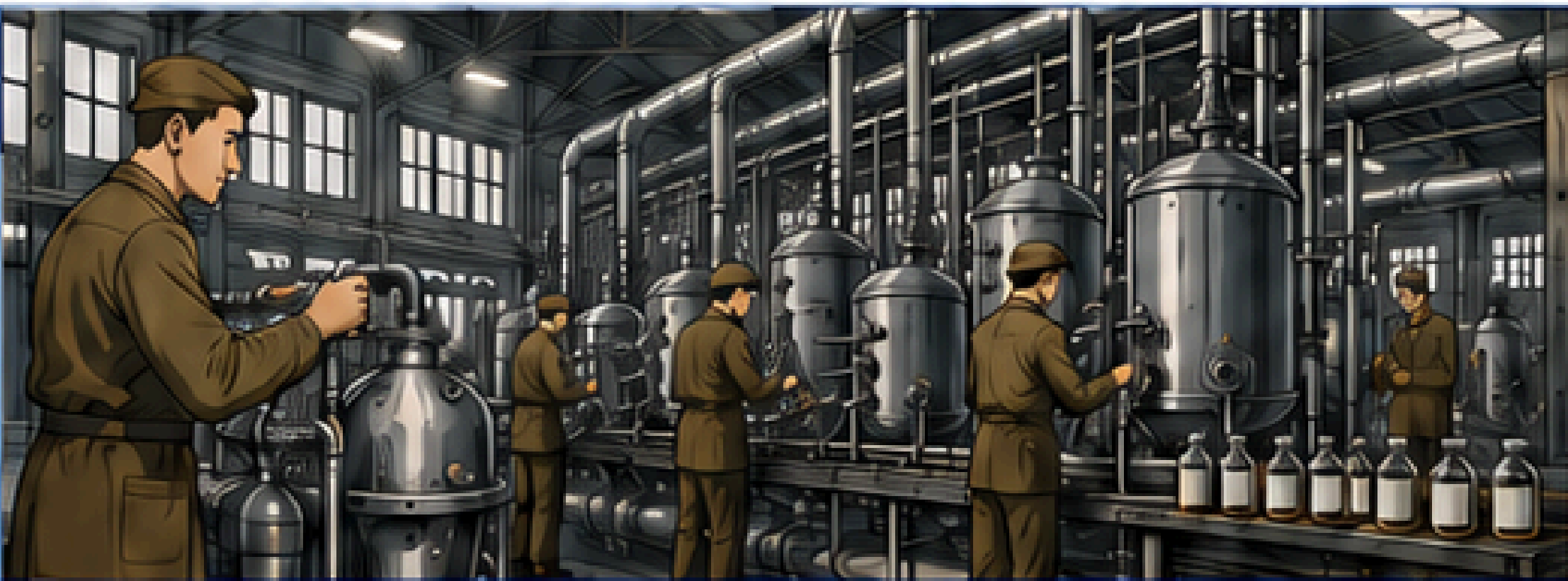
1940: MOUSE TEST

In a controlled experiment, infected mice treated with penicillin survived while untreated mice died.



1941: HUMAN TREATMENT

The first patient improved, but the small supply ran out. The case showed both promise and the need for more production.



1941–45: MASS PRODUCTION

Wartime governments, scientists and pharmaceutical factories in Britain and the USA worked to produce penicillin on a large scale.



WHICH FACTOR MATTERED MOST?

Add one piece of evidence for each factor, then rank the factors 1–4.

	INDIVIDUALS	SCIENCE AND TECHNOLOGY	WAR AND GOVERNMENT	INDUSTRY	Rank
Evidence	Fleming discovered; Florey, Chain and Heatley developed	purification plus animal and human tests	wartime support and cooperation	factories enabled mass production	
Rank	2	1	3	4	1 = most

Most important factor: science and technology

Reason: Purification and controlled testing turned an observation into a usable medicine.



CHALLENGE: How did teamwork make penicillin more significant than Fleming’s discovery alone?

The team combined discovery, purification, testing, government support and factory production, so penicillin could reach patients at scale.

Penicillin was broader and more widely produced than earlier magic bullets, transforming treatment of bacterial infection.

1909: SALVARSAN 606



Paul Ehrlich’s team developed a chemical treatment for syphilis. It targeted one disease but could have serious side-effects.

1928–45: PENICILLIN



Fleming discovered its effect, and Florey and Chain’s team developed it. Wartime government and industry enabled mass production.

IMPACT AFTER 1945



Many bacterial infections became treatable. Operations became safer and fewer people died from previously life-threatening infections.

LIMITS



Antibiotics do not work against viruses. Overuse and misuse can lead to antibiotic resistance, making some bacteria harder to treat.

HOW GREAT WAS THE CHANGE?

Use the information above to complete the comparison table.

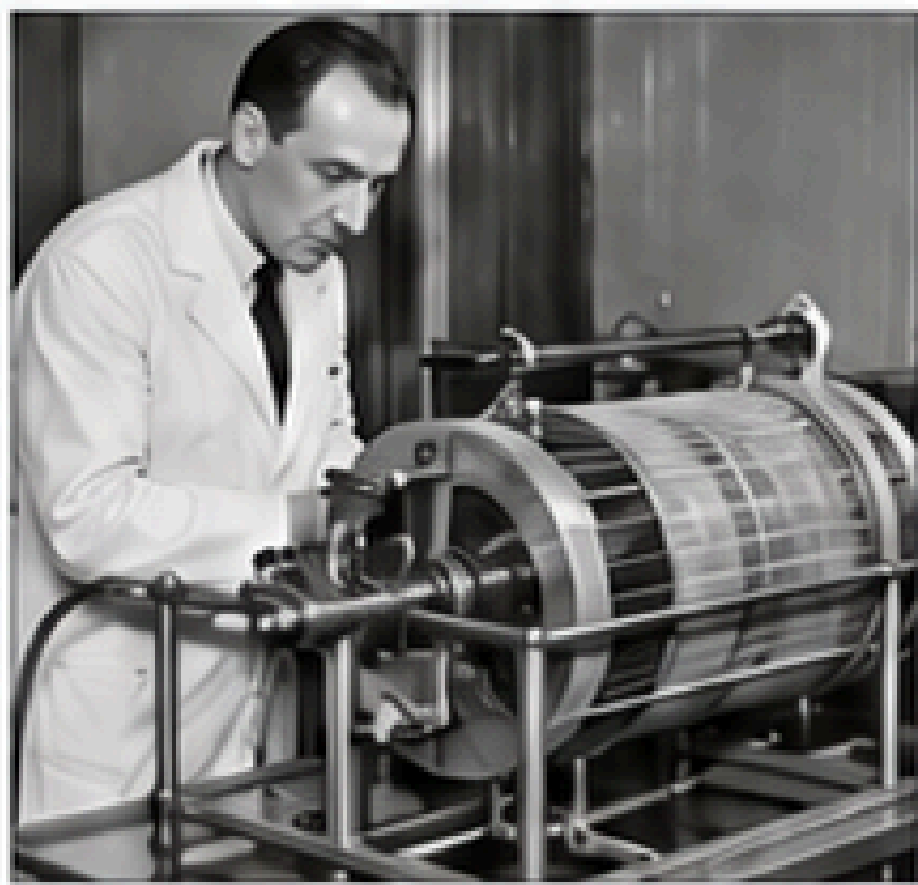
Feature	SALVARSAN 606	PENICILLIN
Range of disease	mainly syphilis	many bacterial infections
Production and access	manufactured but specialist and toxic	mass-produced in wartime, then widely available
Impact	first effective magic bullet for one disease	reduced deaths and made surgery safer

Overall, penicillin was / was not a greater turning point because...
Penicillin was greater because it treated a wider range and mass production gave it much greater impact.

CHALLENGE: Which mattered most: an individual, teamwork, war, government or industry?
Teamwork developed a usable drug; war, government and industry enabled mass production.

Science, engineering, individuals and hospital investment made treatments possible that earlier doctors could not attempt.

1943: DIALYSIS



Willem Kolff built the first practical artificial kidney, showing that it was possible to remove waste products from the blood using a machine.

1954: KIDNEY TRANSPLANT



Joseph Murray led the first successful kidney transplant between identical twins in the USA, proving that transplantation could work in humans.

1950s: RADIOTHERAPY

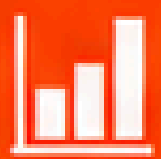


Cobalt machines allowed doctors to target cancer with radiation more precisely, damaging tumours while reducing harm to surrounding healthy tissue.

1987: KEYHOLE SURGERY



Philippe Mouret's laparoscopic gallbladder operation helped spread minimally invasive surgery, allowing patients to recover faster with smaller scars.



IMPACT

These developments meant treatment became more specialised, precise and successful, but it remained expensive and depended on trained teams and hospital technology.



TURNING POINT TEST

Complete the table. For each development, write one impact on treatment and one limitation.

Development	Impact on treatment	Limitation
Dialysis	keeps patients alive by replacing kidney function	repeated treatment and specialist machines
Transplant	can replace a failed organ for years	donor shortage and rejection
Radiotherapy	targets cancer cells	can damage healthy tissue
Keyhole surgery	smaller wounds and faster recovery	specialist equipment; not all operations



YOUR JUDGEMENT

Which development changed treatment most? Use a date, an individual and evidence of impact.

The 1954 kidney transplant changed treatment most because Murray's team showed a failed organ could be replaced.



CHALLENGE

Which factor mattered most: science and technology, individuals, teamwork or government spending?

Science and technology underpinned all four, although individuals and teams applied it.

i Vaccination prevents disease before treatment is needed. Government and the NHS helped organise national programmes at scale.



1942 DIPHTHERIA

A national campaign increased uptake.



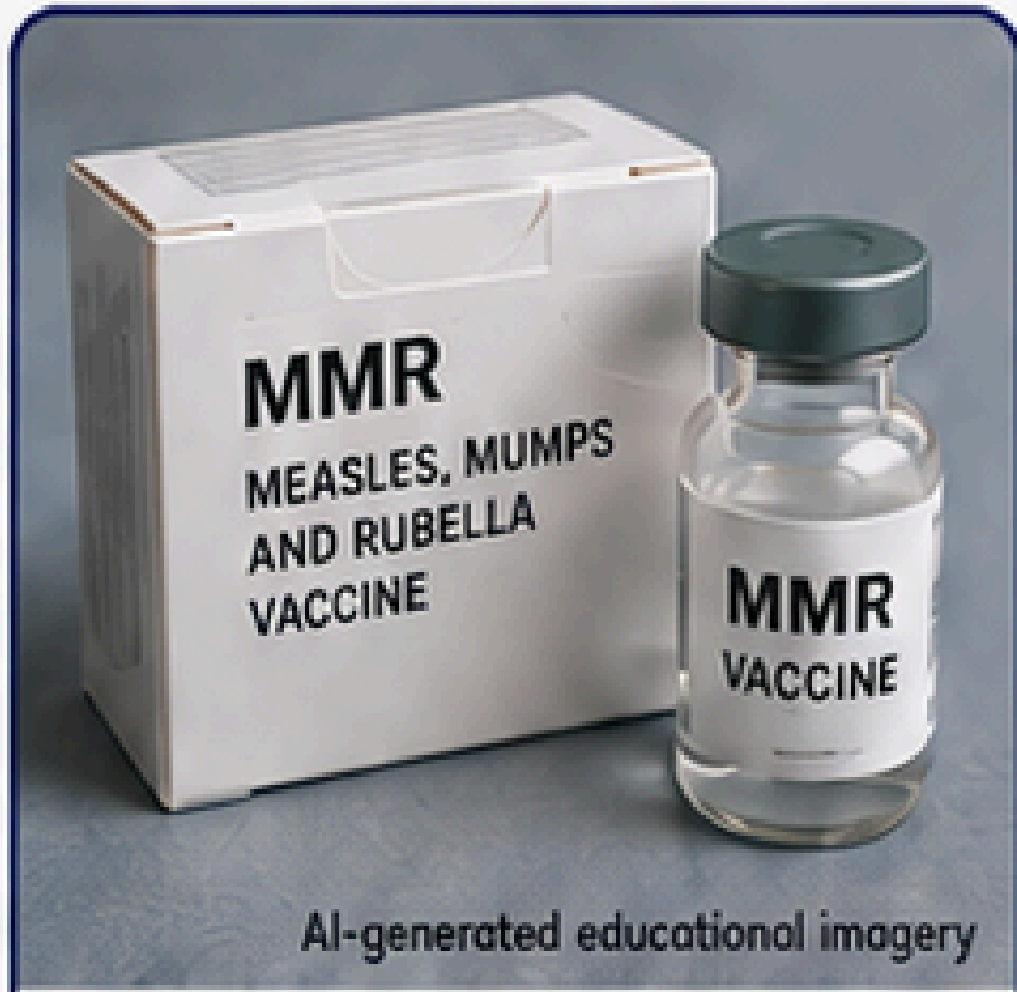
1956 POLIO

Inactivated polio vaccine introduced.



1962 ORAL POLIO

Mass campaigns widened protection.



1988 MMR

Combined measles, mumps and rubella vaccine introduced.

Historical explanation: Organised programmes used funding, clinics, records, invitations and follow-up. High uptake reduced illness and transmission.

Limit: Uptake and effectiveness varied; some vaccines needed several doses or boosters.

BUILD THE PREVENTION CHAIN

Put the cards in a logical order. Write A, B, C or D in boxes 1–4.

A the immune system responds faster

1

B

B a vaccine is given

2

D

C fewer people become severely ill

3

A

D immune memory develops

4

C

EXPLAIN CHANGE

1 How did government and the NHS make mass vaccination more effective?

Government and the NHS funded clinics, staff, records, invitations and follow-up, so national programmes reached more people.

2 Choose one date above. Explain why it was a turning point using one criterion: scale, access, effectiveness or durability.

Example: the 1956 inactivated polio vaccine was a turning point in scale because national introduction widened protection against a feared disease.

Other supported dates/criteria are acceptable.

CHALLENGE: Why did mass vaccination reduce disease without eliminating every infection?

Not everyone took up vaccination; protection was not always complete, some vaccines needed boosters, and pathogens still circulated.

i Governments increasingly tried to prevent disease by influencing behaviour and reducing exposure to risk.

**INFORMATION**



The Smoking Kills white paper (1998) set out a national strategy to reduce smoking.

**LAW AND REGULATION**



Smoke-free law began in Scotland in 2006 and in England on 1 July 2007, reducing exposure in enclosed public places and workplaces.

**TAXATION**



Higher tobacco taxes discouraged use, although effects differed between groups.

**SUPPORT**



Stop-smoking services and the Stoptober campaign, launched in England in 2012, helped people act on advice.

TEST A GOVERNMENT STRATEGY

Choose TWO approaches. For each, explain one strength, one limitation and how government encouraged change.

Approach	Strength	Limitation	How government encouraged change
Smoke-free law	reduced second-hand-smoke exposure across enclosed public places	needed enforcement and did not cover every setting	law changed the environment and set a clear rule.
Stop-smoking support	helped people manage addiction and quit	uptake and local capacity varied	funded services and campaigns such as Stoptober.

Why is a combination likely to work better than one approach alone?

Regulation reduces exposure and opportunity, while practical support helps people change behaviour; together they address different barriers.

FACTOR: government | **LIMITS:** addiction, uptake, enforcement and unequal impact

CHALLENGE: Why can government action reduce risk without eliminating lifestyle-related disease? Addiction, personal choice, inequality and other risks remained, and no campaign, tax or law was completely effective.

 The fight against lung cancer combines prevention, earlier diagnosis and increasingly precise treatment.

 **RISK AND PREVENTION**
Smoking is the main preventable risk factor. Tobacco control, public information and NHS stop-smoking support aim to reduce future cases.



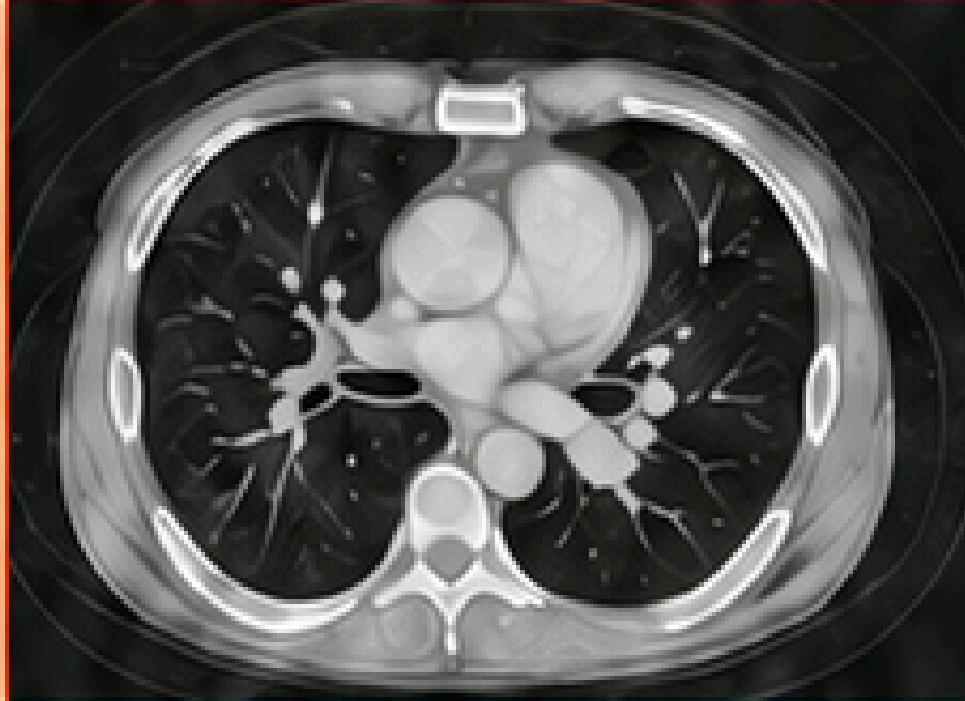
 **CHANGE:**
science and technology improved detection and treatment; government and the NHS widened organised access.

 **2019: TARGETED LUNG HEALTH CHECKS**
The NHS programme began in parts of England. People at higher risk were offered assessment and low-dose CT to find cancer earlier.

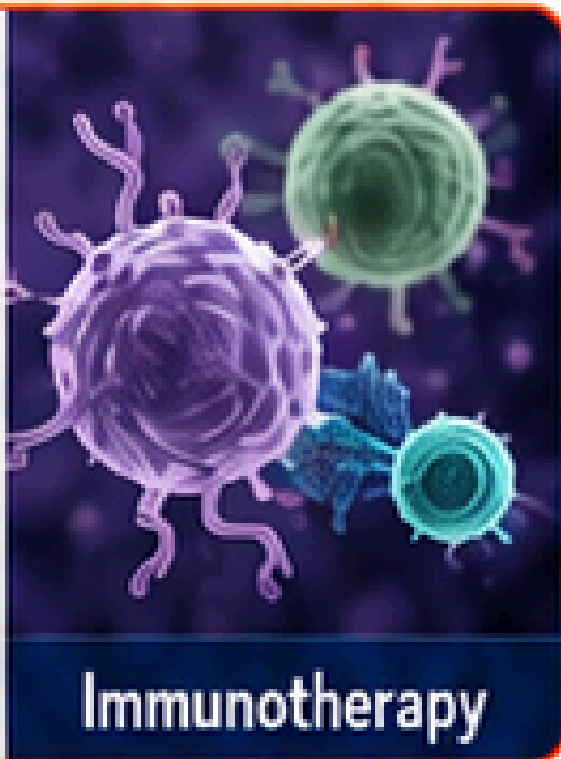
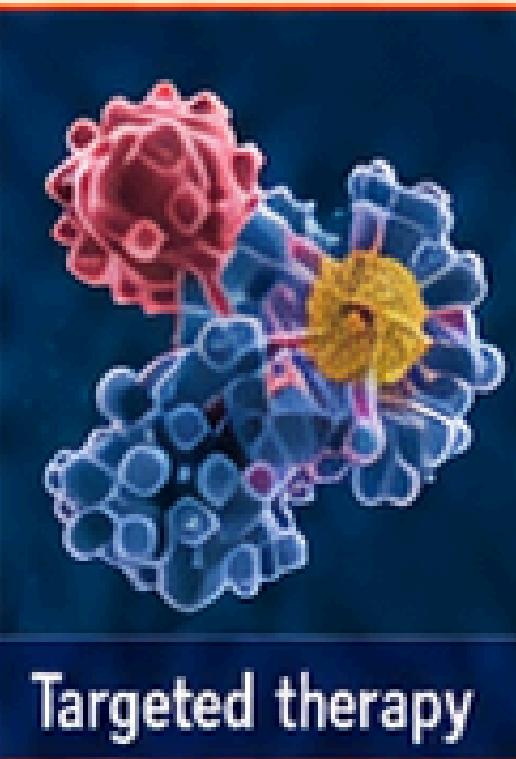
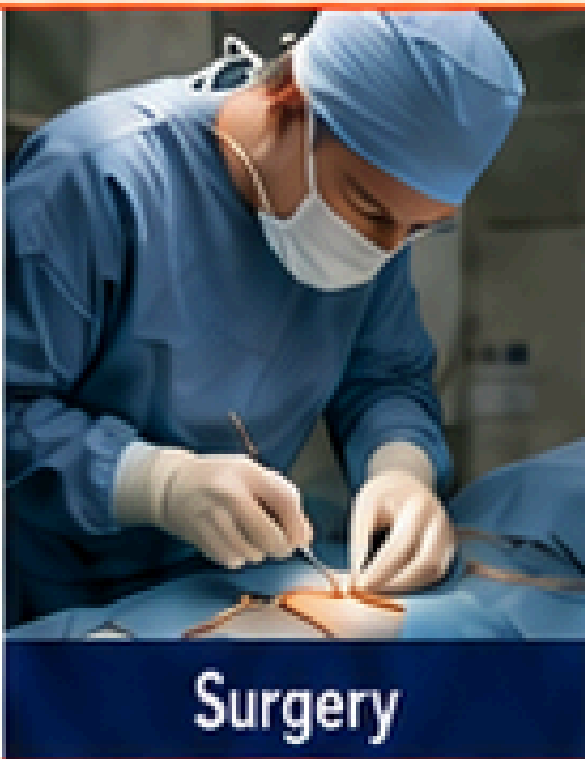


 **LIMIT:**
checks were not initially available everywhere; uptake, cost and specialist capacity affected impact.

 **DIAGNOSIS AND STAGING**
Imaging, bronchoscopy or biopsy confirm type; scans establish size and spread.



 **TREATMENT**
Depending on type and stage: surgery, radiotherapy, chemotherapy, targeted therapy or immunotherapy.



 **BUILD THE PATHWAY**
Put the stages in a logical order. Write A, B, C or D in boxes 1–4.

A tissue is examined	B treatment is planned	C low-dose CT finds an abnormality	D scans establish spread
1 <i>C</i>	2 <i>A</i>	3 <i>D</i>	4 <i>B</i>

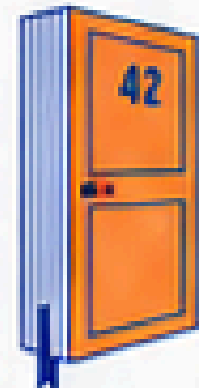
 **WHAT DROVE CHANGE ?**

One contribution of government/NHS: *From 2019, targeted checks in parts of England funded risk assessment and low-dose CT, widening organised access to earlier diagnosis.*

One contribution of science and technology: *Low-dose CT, biopsy, staging, targeted therapy and immunotherapy made diagnosis and treatment more precise.*

 **CHALLENGE:** Which mattered more: prevention, earlier diagnosis or improved treatment?
Judge using effectiveness and access.
Earlier diagnosis can improve treatment options, while prevention reduces future cases and treatment helps people after cancer develops. Earlier diagnosis may matter most where access and uptake are high.

AI-generated educational imagery



1 Explain one way in which ideas about the cause of disease in c1900–present were different from those in c1700–c1900. (4 marks)

Difference: *In c1700–c1900, germ theory increasingly explained disease through microbes; c1900–present also identified genetic inheritance and lifestyle risks.*

Supporting detail from each period:

Pasteur and Koch linked germs to disease.
Modern examples include inherited mutations and smoking.

2 Explain why diagnosis improved during c1900–present. (12 marks)
You may use: blood tests • scans. You must also use information of your own.

Reason 1 + evidence	Reason 2 + evidence	Reason 3 + evidence
<i>Laboratory science: blood tests identified cells, chemicals, antibodies and genes, giving objective evidence and more accurate diagnosis.</i>	<i>Imaging and computing: X-rays, ultrasound, CT and MRI revealed internal structures without surgery, so disease could be located and staged.</i>	<i>NHS and hospital systems: after 1948, more patients accessed specialists, monitors and tests; government funding helped costly technology spread, though access remained uneven.</i>

3 'The creation of the NHS was the most important development in care and treatment during c1900–present.'
How far do you agree? Explain your answer. (16 marks + 4 SPaG)
You may use: the NHS • antibiotics. You must also use information of your own.

Agree	Other factor	Judgement
<i>The NHS launched in 1948 and made GP and hospital care generally free at the point of use. National organisation widened access to diagnosis, treatment and prevention.</i>	<i>Fleming discovered penicillin in 1928; Florey and Chain developed and tested it from 1939, and wartime mass production widened use. Antibiotics reduced deaths from bacterial infection and made surgery safer. Scans and high-tech treatment also improved effectiveness.</i>	<i>The NHS was most important for scale and access, but science created the effective treatments. Overall, the NHS had the widest impact because it enabled millions to use advances; a judgement favouring science is valid if supported.</i>

EXPLAIN ONE WAY = identify a difference and support both sides

EXPLAIN WHY = give linked reasons

HOW FAR = weigh factors and reach a judgement

After completing the questions, tick:

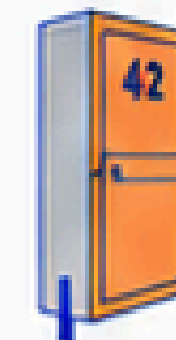
I used precise evidence ☒

I explained links ☒

I reached a supported judgement ☒

Indicative content – other accurate evidence and judgements are acceptable.

REVIEW AND EXIT TICKET



CLASSROOM 42



RETRIEVAL SIX

- 1 Name the two new types of factor used to explain causes of disease.
Genetic factors and lifestyle factors.
- 2 Give one way diagnosis improved after 1900.
Blood tests, scans and monitors provided objective evidence and revealed internal structures.
- 3 Explain one impact of the NHS on access to care.
Care generally free at the point of use widened access regardless of ability to pay.
- 4 How did Florey and Chain's role differ from Fleming's?
Fleming discovered penicillin; Florey and Chain developed, tested and helped mass-produce it.
- 5 How can unnecessary use or taking antibiotics other than as prescribed increase resistance?
Unnecessary or incorrect use selects resistant bacteria, which survive and reproduce; antibiotics should be used exactly as prescribed.
- 6 Give one named and dated example of government action to prevent disease.
*In England, smoke-free law came into force on 1 July 2007.
Scotland introduced its ban in 2006.*



RANK THE TURNING POINTS

Rank 1–4, then justify your first choice using one criterion: scale, speed, access, effectiveness or durability.

- 2 the NHS, 1948
- 1 penicillin development, 1928–45
- 3 mass vaccination
- 4 lung health checks, 2019

My first choice is most important because:

Penicillin ranks first for effectiveness: it substantially reduced deaths from bacterial infection and made many operations safer.

Other supported rankings are acceptable.



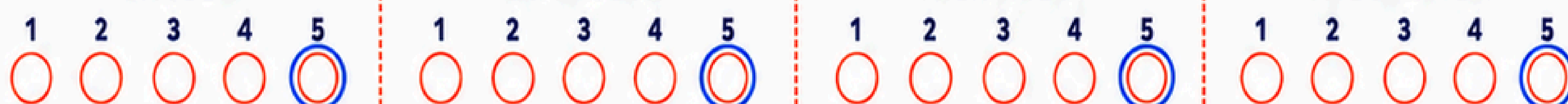
CONFIDENCE RECHECK

CAUSES

DIAGNOSIS

TREATMENT

PREVENTION



EXIT TICKET

The greatest change in medicine during c1900–present was penicillin because it transformed treatment of bacterial infection and made surgery safer.

The main factor was science and teamwork.