DIAGNOSTIC STEWARDSHIP

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Outline

- What is Diagnostic Stewardship?
- GPPS results from Africa
- Breakdown in SA
- Existing Approaches
- Conclusions

Diagnostic Stewardship

- Defined in the GLASS Manual as:
- coordinated guidance and interventions to **improve appropriate use of microbiological diagnostics to guide therapeutic decisions.** It should promote **appropriate, timely diagnostic testing**, including specimen collection, and pathogen identification and **accurate, timely reporting of results** to **guide patient treatment**.
- The **underutilization and incorrect use** of microbiological tests and diagnostic tools **can have a negative effect** on the management and **outcome** for individual patients. It also results in a **lack of representative surveillance data** for empiric treatment recommendations and AMR control strategies.

WHO: Diagnostic Stewardship Guide to Implementation in antibiotic resistance surveillance sites

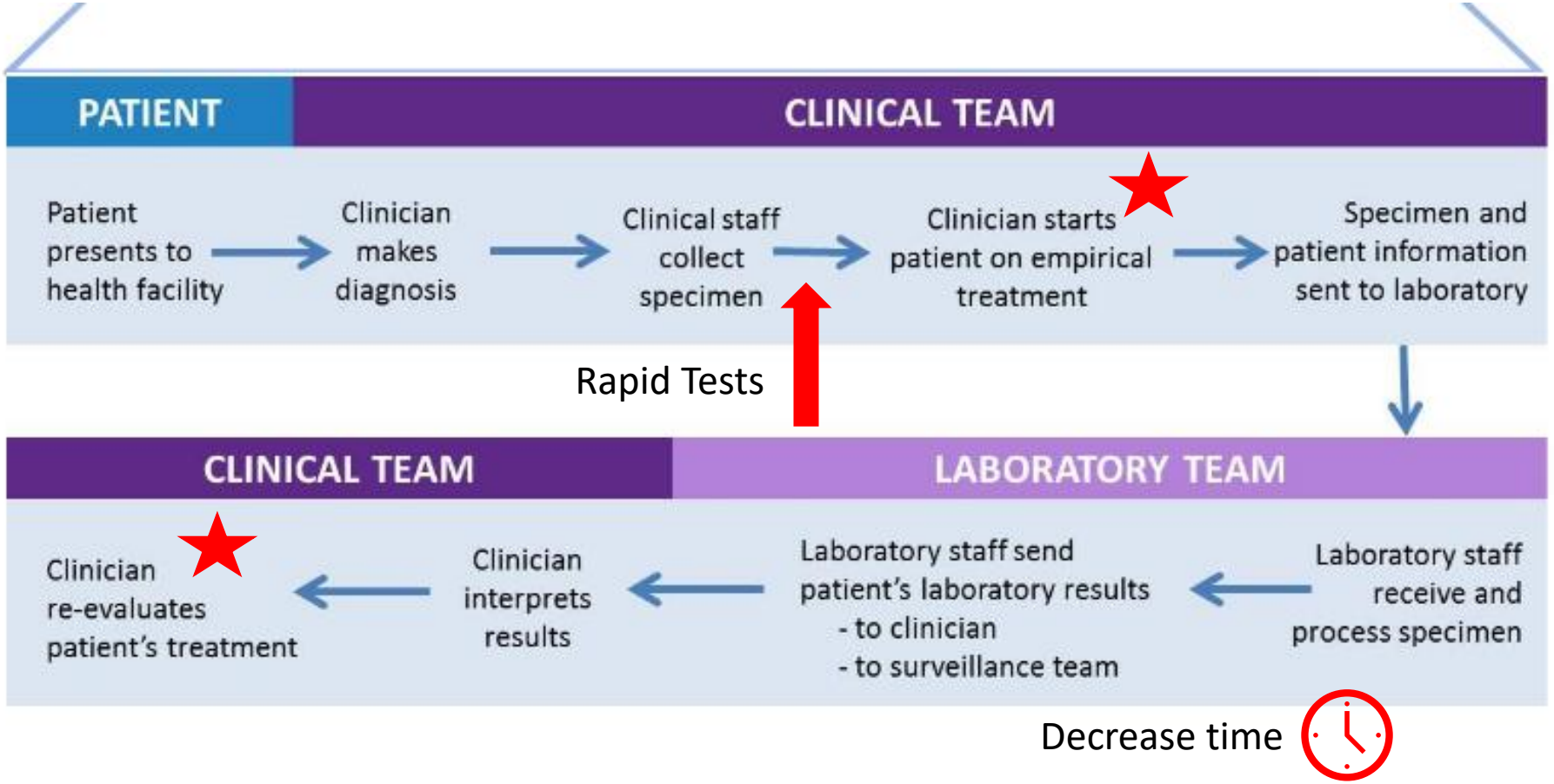
Definition:

To improve patient care by optimising the use of diagnostic tests

4 Ts of diagnostic Stewardship

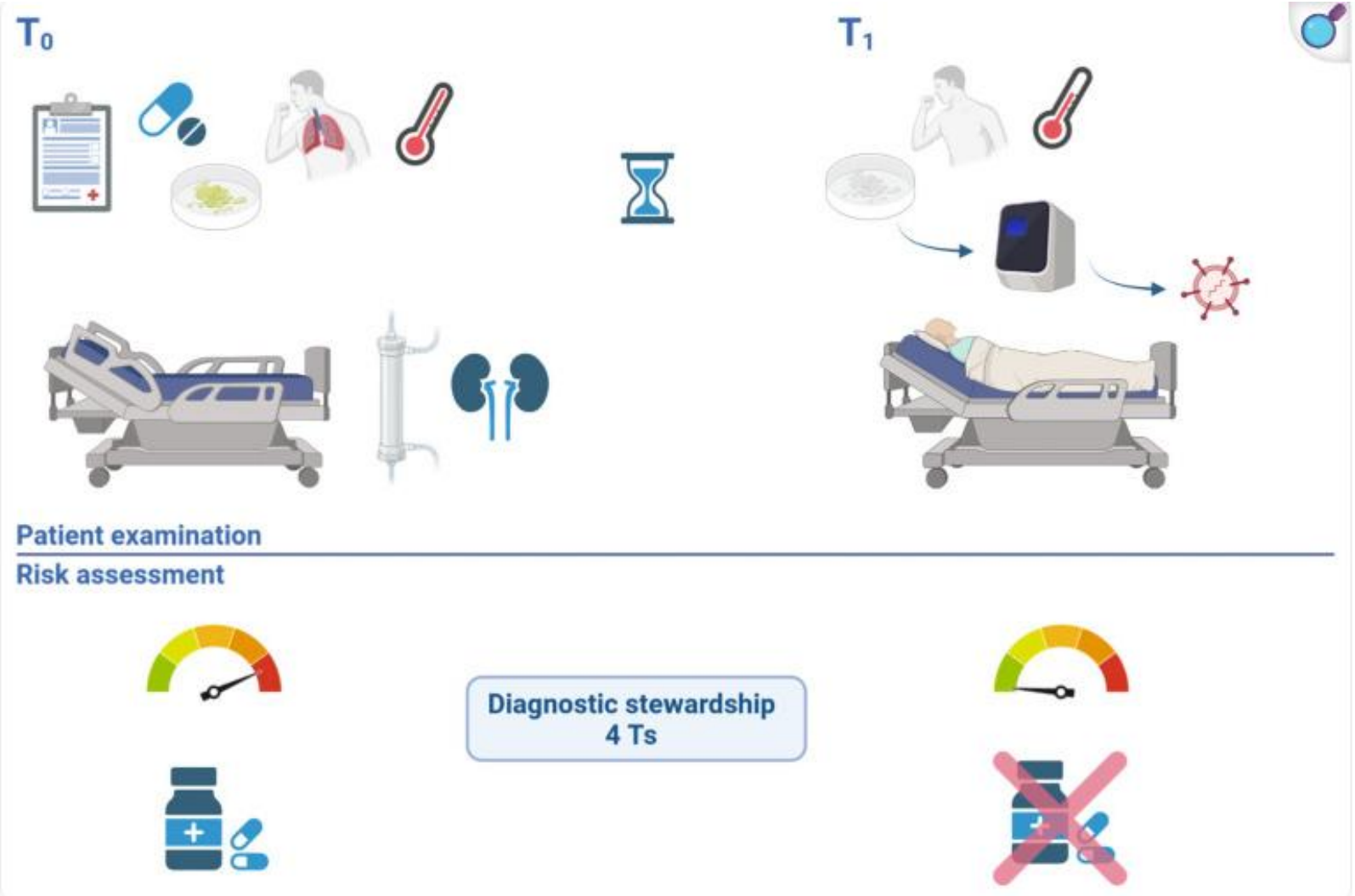
Choosing the right <u>TEST</u>	**Using the right <u>TYPE</u> of sample**	**Collected at the right <u>TIME</u>**	**in order to guide <u>TREATMENT</u> decisions**

The diagnostic pathway



Example

Patient with recurrent admissions, diabetic recent antibiotic use. Cough and high fever



Clinical review patient is well looking. Molecular test ordered which identifies viral aetiology

Săndulescu O et al. Syndromic Testing in Infectious Diseases: From Diagnostic Stewardship to Antimicrobial Stewardship. Antibiotics (Basel). 2022 Dec 21;12(1):6

Biomarker breakdown in South Africa (2023)

Diagnosis	Number of Prescriptions	Based on Biomarker (%)
Sepsis	651	75
Pneumonia	1065	63
CNS	290	60
Skin and Soft Tissue	558	50
Proph Gynae	305	19

Biomarker = CRP or PCT or WCC

Culture Breakdown South Africa (2023)

Diagnosis	Number of Prescriptions	Total Cultures to lab (%)	Blood Cultures to lab (%)
Sepsis	651	76	71
CNS	290	69	41
Pneumonia	1065	55	44
Skin and Soft Tissue	558	37	22
Proph Gynae	305	5	3

Total Cultures: Blood, urine, stool, CSF, BAL, Sputum, Wound, Other

Existing Approaches

Approach

- Urinary Tract Infections
  - Symptomatic patients
  - Clean catch urine
- Aseptic Blood Culture technique
- Rapid point of care tests
  - During RSV/Flu season
  - CRPs
- NAAT for Rif resistant TB

Outcome

- Decrease antibiotic use for asymptomatic bacteriuria
- Decreased contamination rates
  - Antibiotics stopped sooner
- No antibiotics or stopped sooner
- Rapid initiation of appropriate treatment

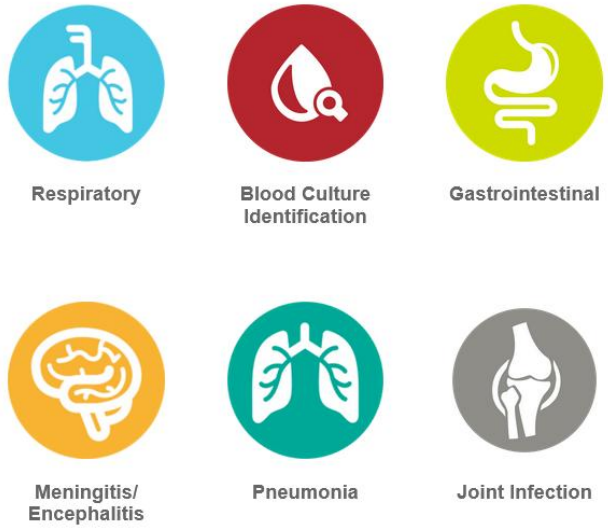
New Diagnostics

MALDI-TOF (Matrix-Assisted Laser Desorption/Ionization Time-of-Flight)

- Fast
- Accurate
- Cost effective
- Decreased time to culture result

BIOFIRE diagnostics

- Multiplex PCR
- Syndromic panels
- 1 hour turn around



Conclusions:

- Laboratories are a scarce resource
- Strengthen diagnostic approaches
  - Clinical examination and patient condition NB
  - Always think how the test will help you in management of patients
- Consider point of care tests:
  - Biomarkers
  - Viral LFA/PCR
- Antimicrobial Stewardship and Diagnostic Stewardship work together to improve patient outcomes
- Teamwork between clinicians and microbiologists

Antimicrobial Stewardship 4 Ds

- Right Drug
- Right Dose
- Right Duration
- Timely de escalation

Diagnostic Stewardship 4 Ts

- Right Test
- Right Type of Sample
- Right Time
- Guide Treatment decisions

Thank You