

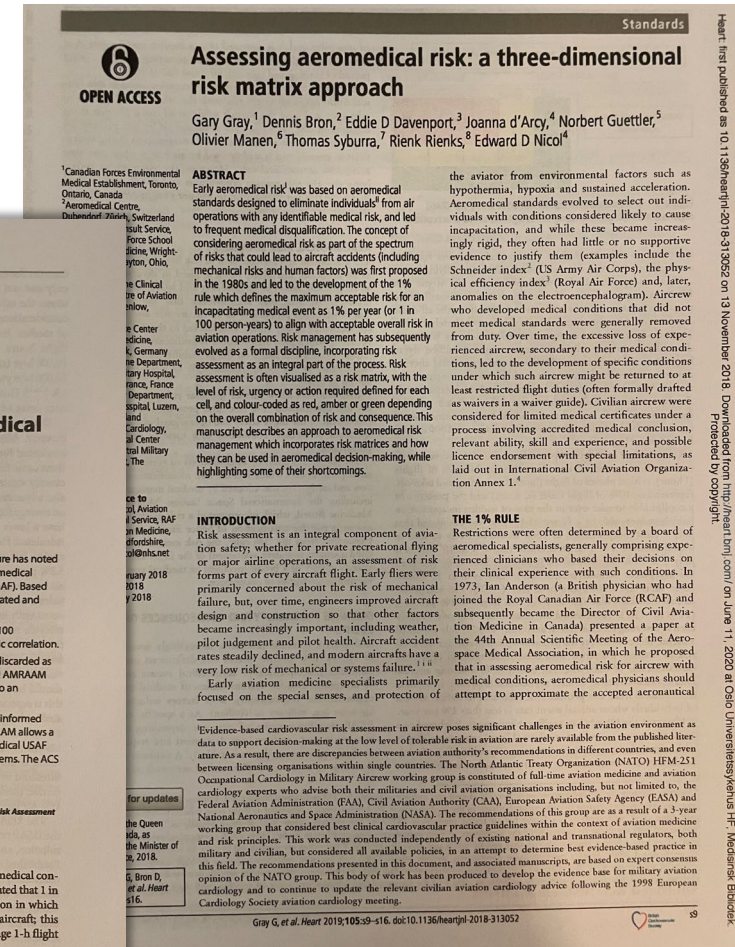
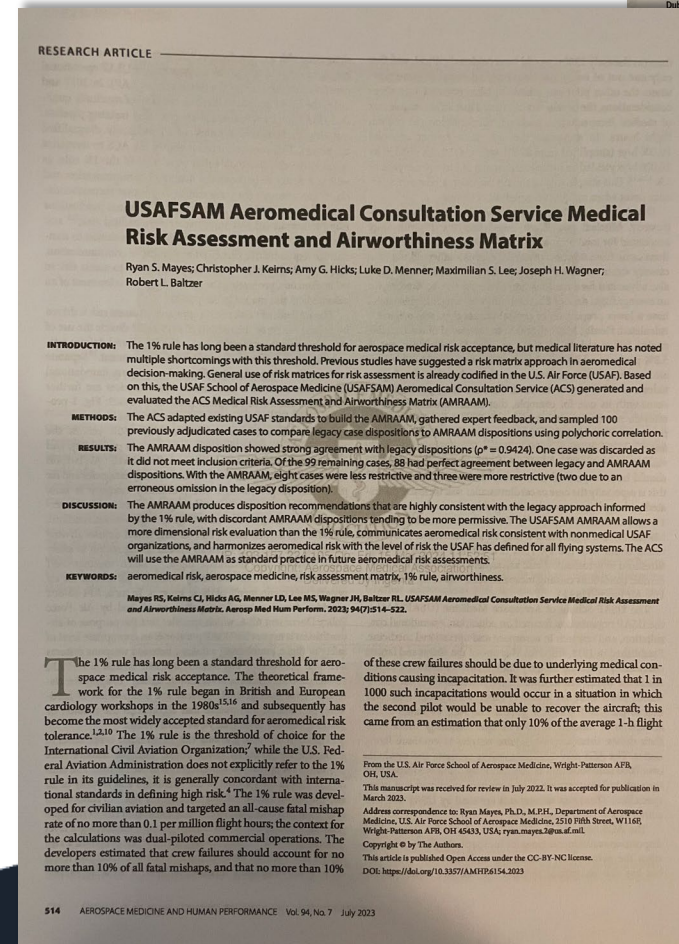
# ***The Mental Incapacitation Risk Assessment Process (MIRAP)***

Anthony S. Wagstaff, MD DAvMed PhD



# ■ Safety risk management principles

- Based on ICAO risk matrix
- Similar to matrix proposed by NATO cardiology group and USAF SAM.
- Adapted for use for the full scale of incapacitation event severity and probability



MESAFE MATRIX			Catastrophic - A	Hazardous - B	Major - C	Minor - D	Negligible - E
			May cause catastrophic event	may cause flight safety critical event	May compromise flight safety	Reduced effectiveness and capacity to adapt to operational requirements	Minimal impact on flight safety
			Total incapacitation	Severe incapacitation	Major decrement on performance	Minor to moderate performance compromise, may continue duties	Minimal impact on performance
Frequent 5	> 1/month	100	5A	5B	5C	5D	5E
Occasional 4	1-10 times	1.000	4A	4B	4C	4D	4E
Remote 3	10-99%	10.000	3A	3B	3C	3D	3E
Improbable 2	1-10%	100.000	2A	2B	2C	2D	2E
Extremely improbable 1	<1%	>1.000.000	1A	1B	1C	1D	1E

\*given **random** onset of event unconnected to flight. If event is connected to flying activity (e.g. Murder suicide or flight anxiety), use career frequency rather than yearly

	<b>Risk unacceptable</b>	**Operational risk reduction could be co-pilot, backup crew, time window to land helicopter etc. Personal risk factors could be close follow-up by psychologist, peer-support etc. Formalised risk reduction is documented and required in the certificate.
	<b>Risk unacceptable, but may in some cases be acceptable after thorough review and specific mitigation. A medical board should in such cases be employed**</b>	
	<b>Risk may be acceptable - may require operational and/or personal risk reduction**</b>	
	<b>Risk acceptable</b>	

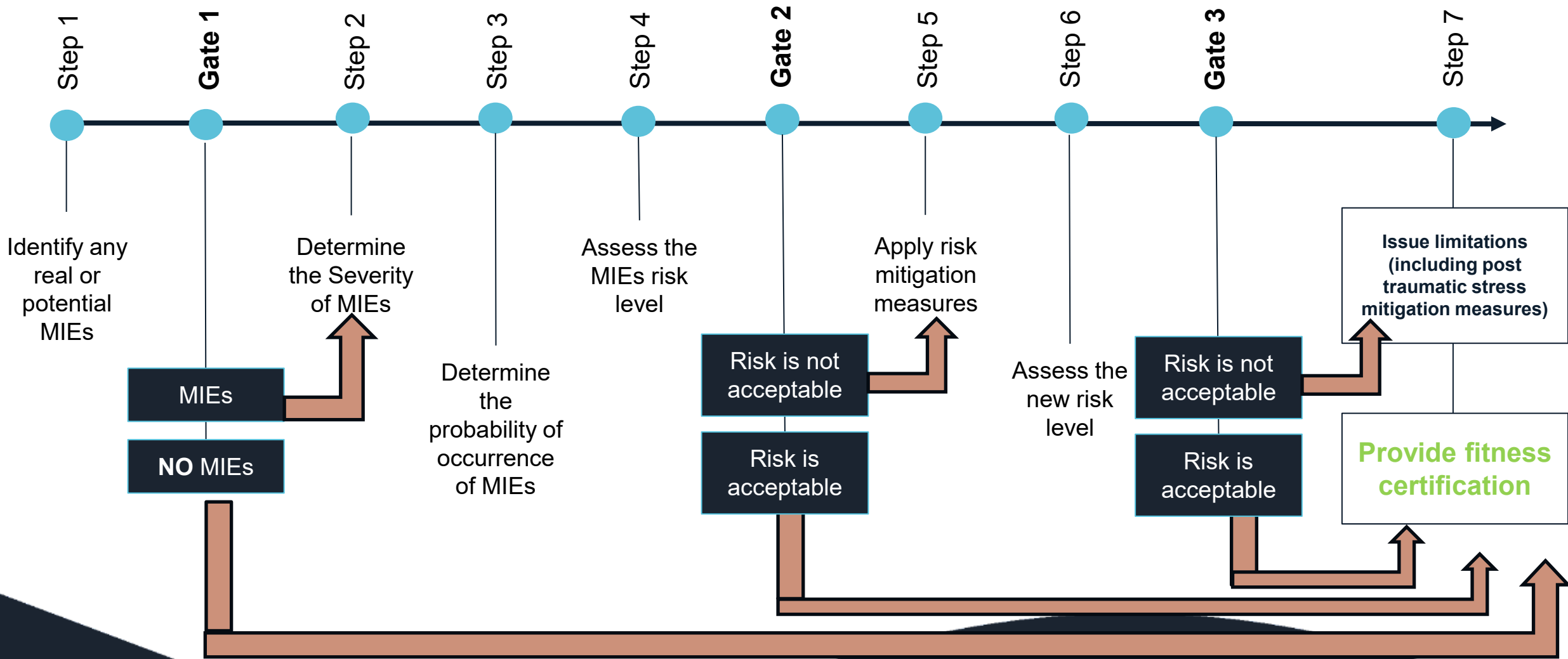


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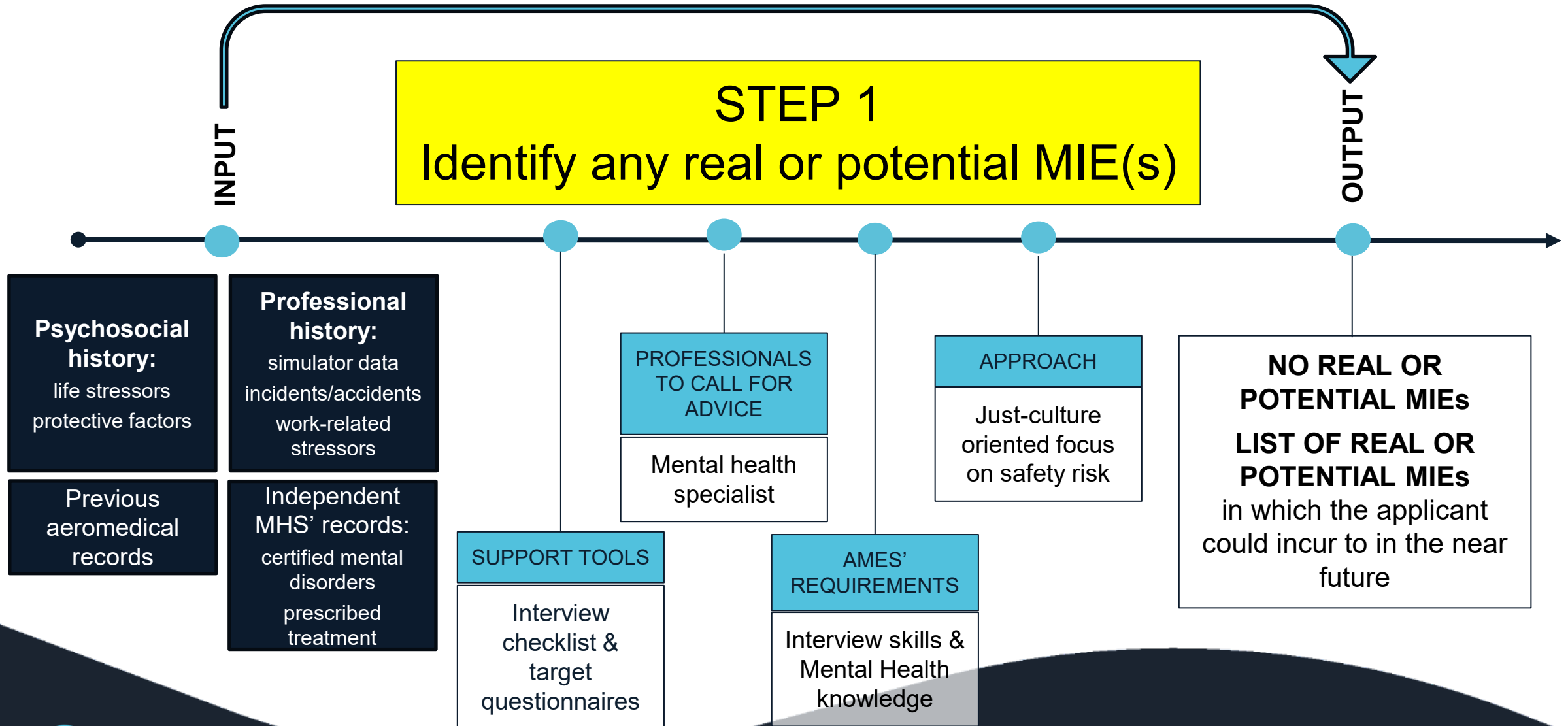
# THE MIRAP PROCESS



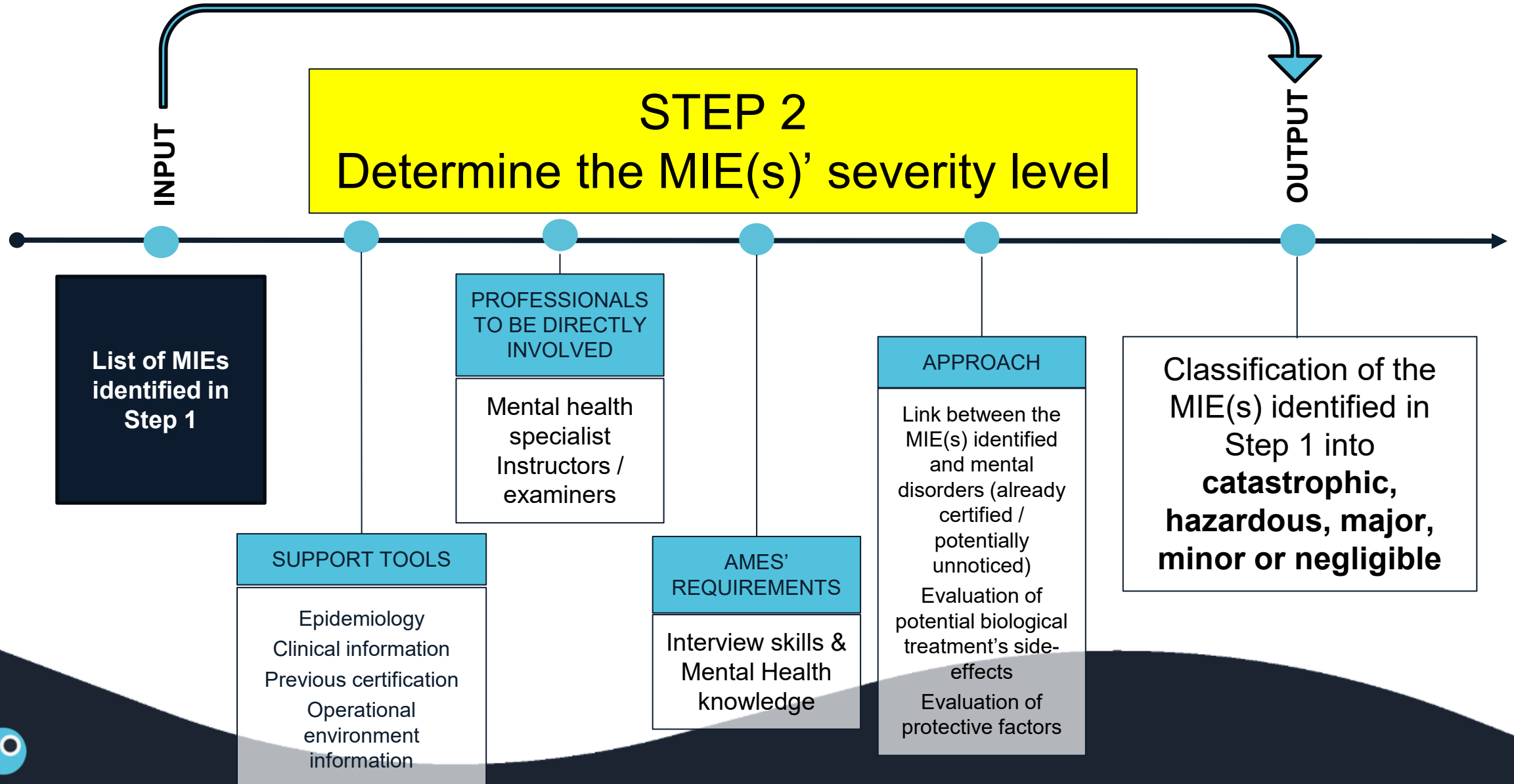
# The MIRAP steps



# STEP 1 – IDENTIFY ANY REAL OR POTENTIAL MIE

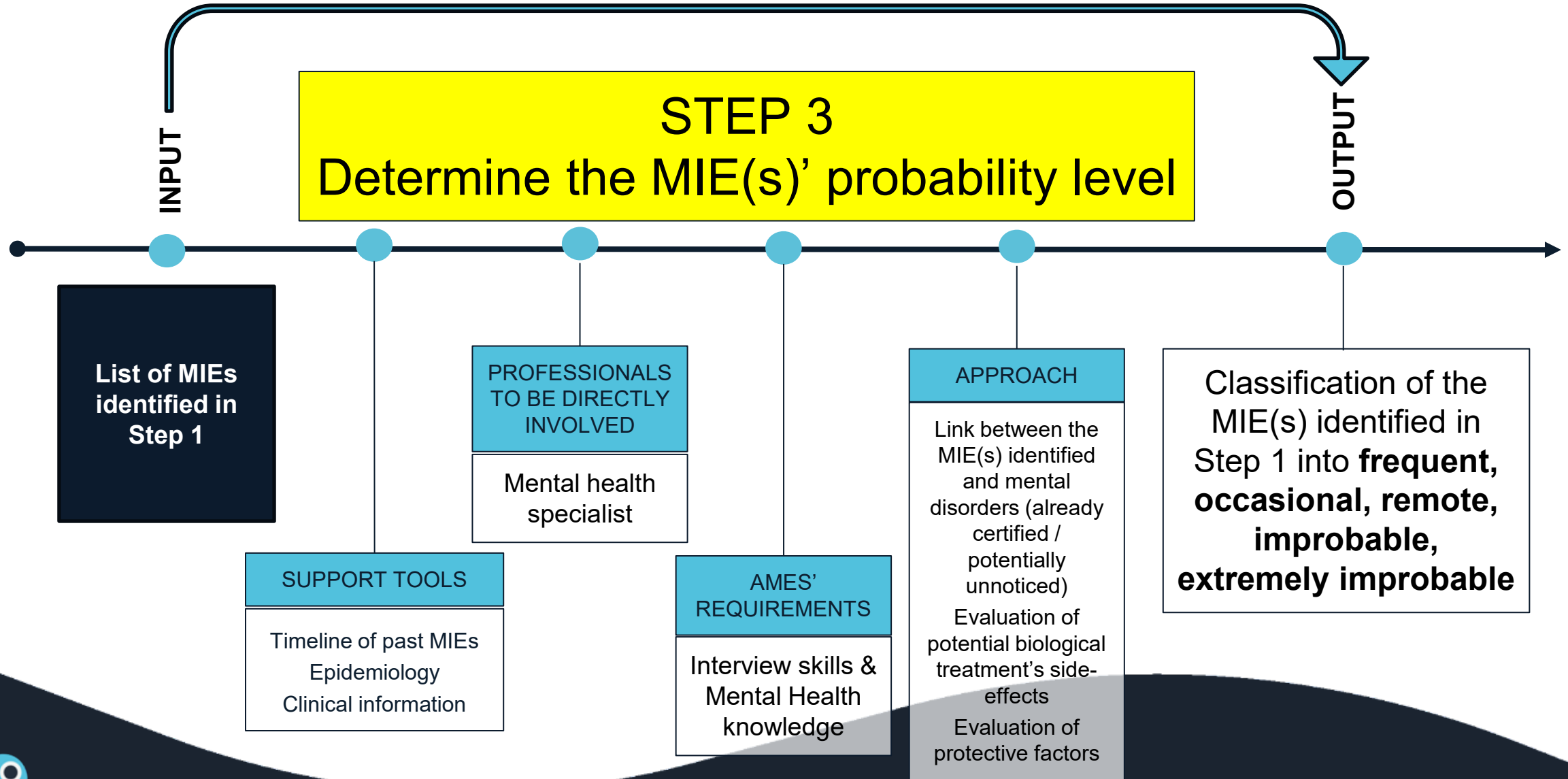


# STEP 2 – DETERMINE THE MIE(s)' SEVERITY LEVEL



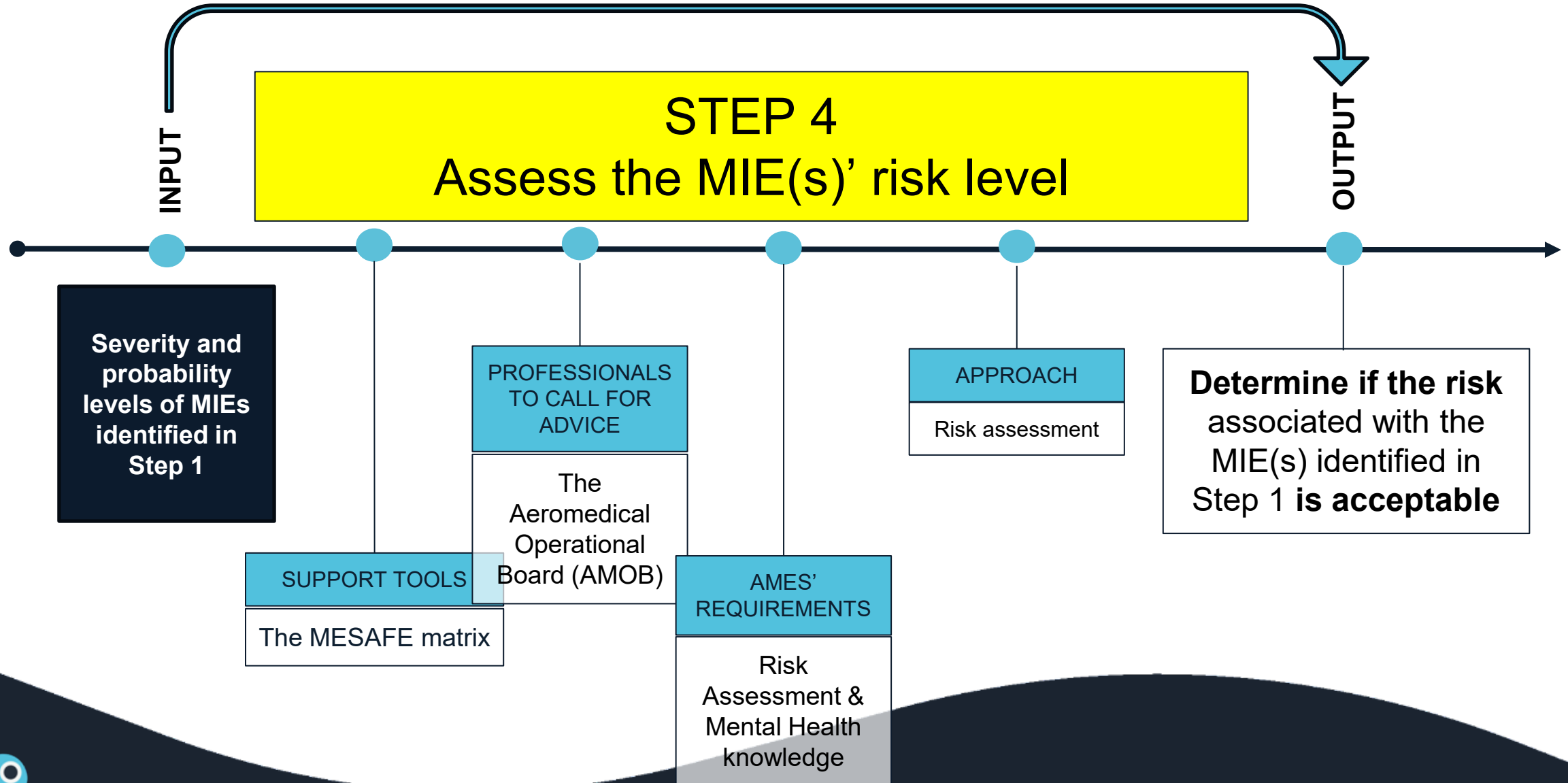


# STEP 3 – DETERMINE THE MIE(s)' PROBABILITY LEVEL





# STEP 4 – ASSESS THE MIE(s)' RISK LEVEL

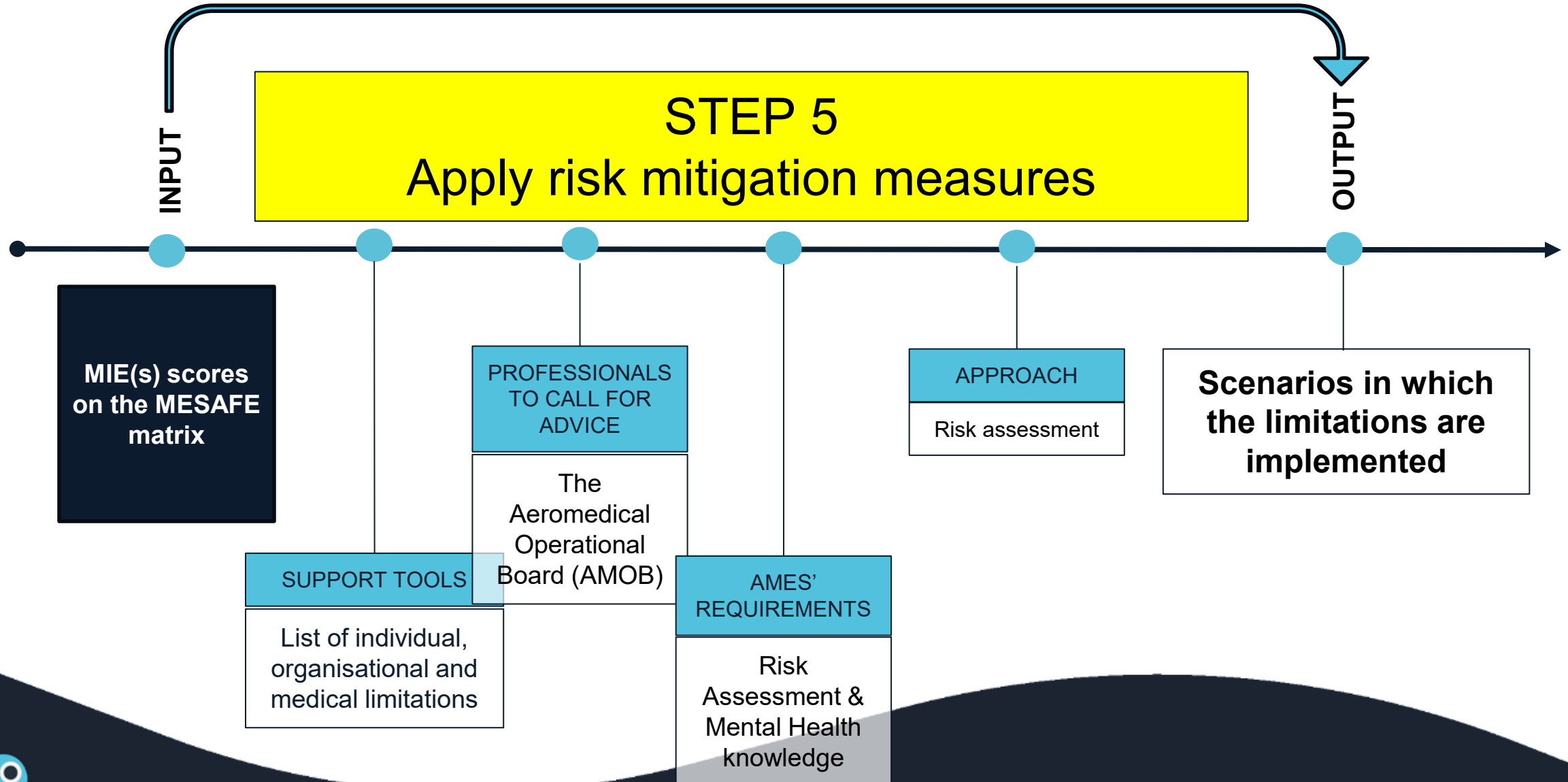


MESAFE MATRIX			Catastrophic - A	Hazardous - B	Major - C	Minor - D	Negligible - E
Risk assessment of mental health			May cause catastrophic event	may cause flight safety critical event	May compromise flight safety	Reduced effectiveness and capacity to adapt to operational requirements	Minimal impact on flight safety
	Frequency per year	Flight hours between each event (approx) *	Total incapacitation	Severe incapacitation	Major decrement on performance	Minor to moderate performance compromise, may continue duties	Minimal impact on performance
<b>Frequent 5</b>	> 1/month	100	5A	5B	5C	5D	5E
<b>Occasional 4</b>	1-10 times	1.000	4A	4B	4C	4D	4E
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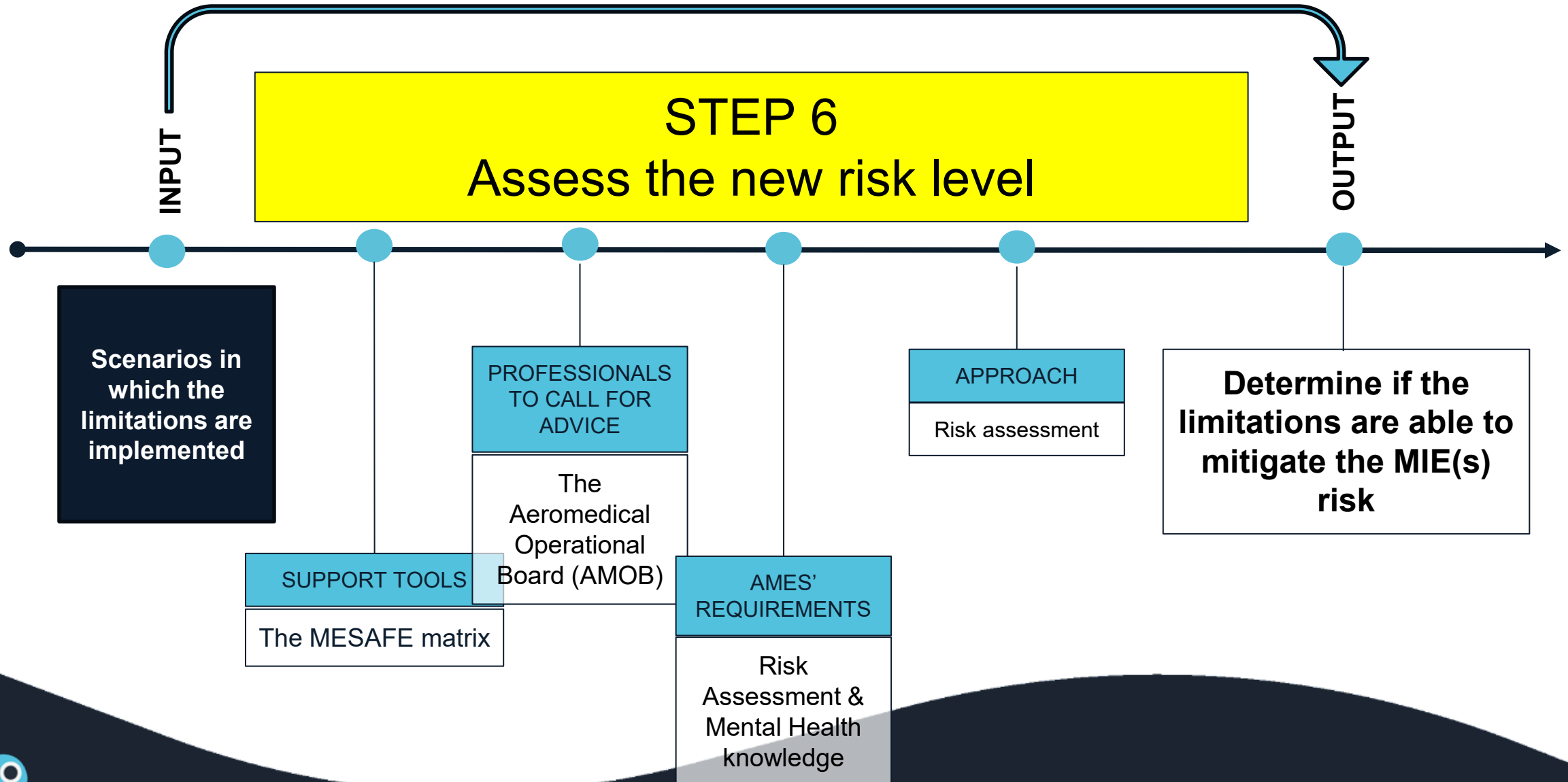
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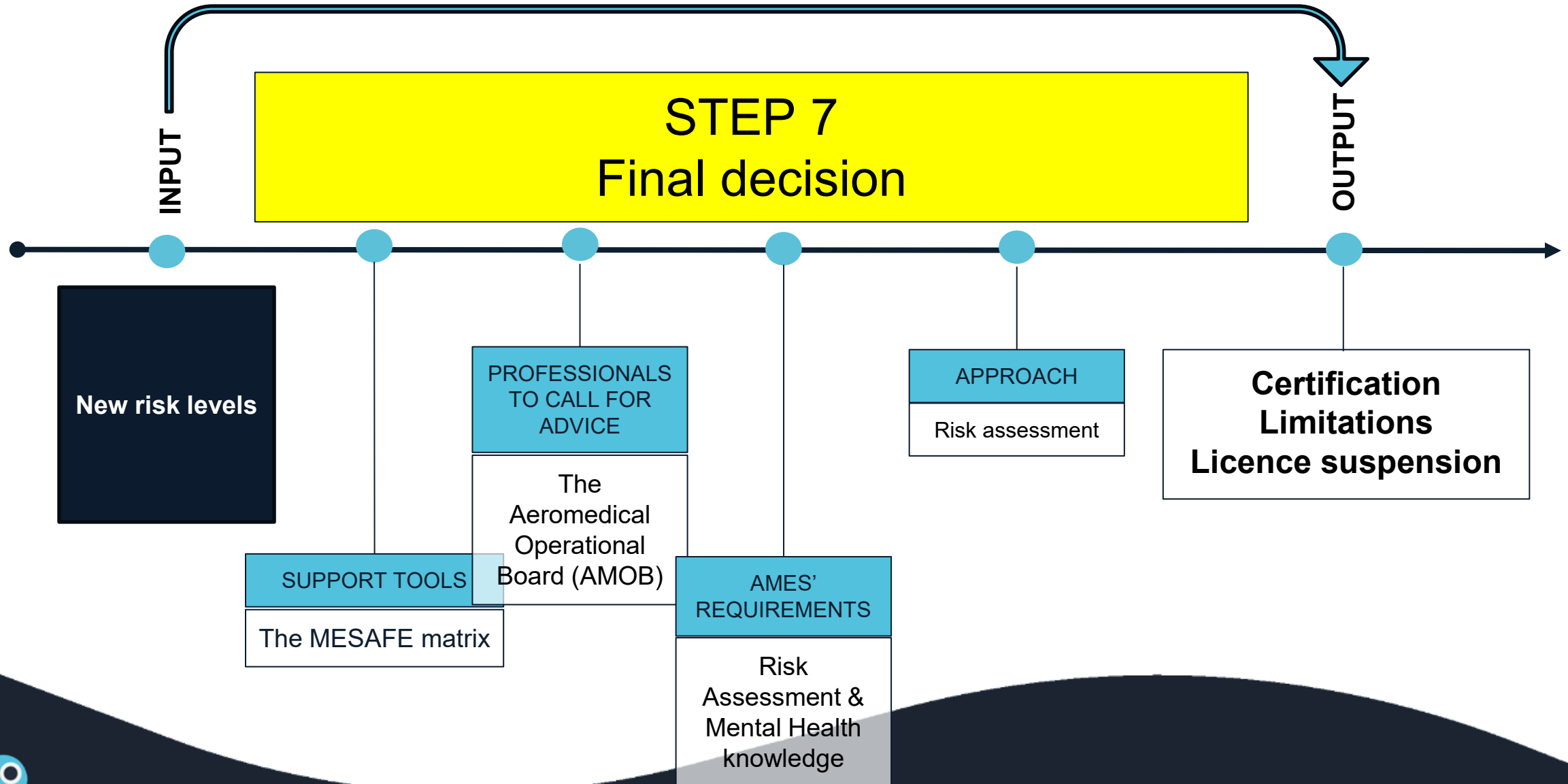
# STEP 5 – APPLY RISK MITIGATION MEASURES



# STEP 6 – ASSESS THE NEW RISK LEVEL



# STEP 7 – FINAL DECISION



# The result

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## - first and foremost a decision on a difficult case

For the AME and Medical Assessor:

- Standardised
- Specific and accurate
- Documented
- Easy to update with changes

■ For the Pilot or ATCO:

- Common language
- Participation
- Transparency
- Easier to understand decision
- Easier to understand what changes would require new assessment





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