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Harmonisation of Medical Flight Statuses in Air Traffic Management

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SUMMARY

Inconsistent operational handling of medical flight statuses, including MEDEVAC and HOSP, across States increases controller workload, reduces traffic predictability, and may affect the timely execution of time-critical medical missions. This paper reviews the existing regulatory framework, identifies gaps between formal status recognition and operational application. It further examines how emerging ATM concepts such as FF-ICE and SWIM may influence future system-based handling of medical flight status information.

1. INTRODUCTION

1.1. Operators conducting medical flights have reported that, despite filing a medical status in the flight plan, the operational treatment of such flights varies significantly. These inconsistencies are particularly evident in cross-border operations and even between adjacent Flight Information Regions (FIRs), where varying interpretations by individual air traffic services (ATS) units can result in disparate levels of priority and handling.

1.2. Certain medical flights are inherently time-critical, such as those transporting live organs for transplant and depend on prioritised air traffic handling to fulfil their mission. Others, like routine patient transfers for scheduled treatment, may not require the same level of urgency.

1.3. However, the absence of a shared operational understanding or distinct designation between urgent and non-urgent medical flights, prioritisation becomes inconsistent. This ambiguity can increase controller workload, reduce predictability for flight crews, and compromise the effectiveness of traffic flow management, potentially delaying genuinely life-saving operations.

1.4. These inconsistencies in how medical flight statuses are defined, applied and handled underscore the need for a more harmonized framework. Although distinctions between urgent and non-urgent flights are operationally meaningful, they are not consistently codified across States or FIRs. This lack of clarity complicates prioritisation, particularly during high-traffic scenarios, and raises concerns about the reliability of current status indicators.

2. DISCUSSION

2.1. ICAO documentation provides a mechanism to identify medical flights via the STS/ indicator in Item 18 of a flight plan. As stated in Doc 4444 PANS ATM Appendix 2, this indicator signifies a *"reason for special handling by ATS"*. These specific purposes are further specified as follows: **MEDEVAC** is used *"for a **life critical emergency** evacuation"*, while **HOSP** is used *"for a medical flight declared by medical authorities"*. (PANS ATM)

2.2. While MEDEVAC is clearly associated with emergency conditions as reflected in its definition, HOSP lacks an equivalently urgent connotation. This difference in semantic weight creates an implied prioritisation but does not guarantee harmonized handling in practice.

2.3. The table below summarizes the main ICAO provisions, their limitations, and the resulting operational consequences that contribute to this inconsistency.

Document.	Scope	Relevant Provisions	Limitations	Operational Consequences
Annex 2 Rules of the Air	Global	Requires the submission of a flight plan, enabling ATS units to receive operational information in advance	Does not define prioritisation criteria or handling procedures for medical flights	ATS units may receive status indicators but lack clear guidance on how to act upon them
Doc 4444 PANS-ATM	Global	Introduces STS indicators such as MEDEVAC and HOSP and outlines general priority principles	Provides only a high-level framework with no detailed or enforceable procedures	Local units interpret priority levels inconsistently; some may under-prioritize or over-prioritize
Doc 7030 Regional Supplementary Procedures	Regional	In some regions, includes exemptions or specific provisions for MEDEVAC flights	Content and applicability vary between regions	Flights may be treated differently across FIRs, undermining predictability and coordination

2.4. Doc 4444 outlines an unequivocally clear prioritisation, that aircraft known or reasonably believed to be in a state of emergency, including those affected by unlawful interference, shall be granted priority over all other traffic. Beyond emergencies, the same document outlines additional prioritisation criteria: for aircraft in the approach and landing phases, those compelled to land due to safety-critical factors, such as engine failure or fuel shortage, shall receive priority followed by hospital aircraft or those transporting patients in need of urgent medical attention and then aircraft engaged in search and rescue operations.

2.4.1. Additionally, ICAO clarifies that aircraft in the final stages of approach typically take precedence over departing aircraft from the same or intersecting runways. Regarding departure sequencing, while the standard practice is to clear flights in readiness order, ICAO provisions allow for exceptions in departure sequencing to give priority to specific categories of aircraft, including those engaged in medical operations. (PANS ATM)

2.5. Moreover, while MEDEVAC's emergency designation might suggest a default for priority, States do not consistently apply that status uniformly, and there is limited guidance on how to manage traffic when multiple medical flights are in the airspace simultaneously. This lack of structured coordination contributes to inefficiencies, increases controller workload and results in inconsistent handling of medical flights.

2.5.1. Regional variability further contributes to inconsistency. Some regions provide Air Traffic Flow Management (ATFM) exemptions for MEDEVAC flights, while others do not, and differing interpretations may exist even within the same FIR.

2.5.2. In practice, both underuse and overuse of medical status indicators have been observed. Some time-critical flights are not filed using the appropriate status, while others are designated as medical without meeting urgency criteria. Both situations can reduce predictability and complicate traffic management.

2.6. Collectively, these factors create operational uncertainty for both pilots and controllers and may reduce the effectiveness of medical flight prioritisation.

2.7. To complement this regulatory review with operational insight, a targeted survey was conducted among air traffic controllers from different regions. The responses provided valuable perspectives on current practices and challenges. We sincerely thank all participants for their thoughtful contributions.

2.8. Eleven (11) Members Associations participated with 45 responses received. The survey results reveal several consistent themes across regions. While medical flight plan status indicators are widely recognised, understanding of their operational distinction is uneven. Most respondents reported the existence of national or local procedures and ATFM exemptions for medical

flights; however, approaches to prioritisation, coordination, and cross-border handling vary considerably. These findings highlight a gap between formal recognition of medical statuses and their consistent operational interpretation and application, particularly in complex or multi-FIR environments.

2.8.1. **Recognition vs Understanding**

Medical flight status indicators are almost universally recognised, with 97% of respondents confirming their presence in operational environments. However, approximately 40% of respondents reported that they either do not clearly distinguish between MEDEVAC and HOSP in operational terms or operate in environments where the HOSP indicator is rarely used or not implemented.

2.8.2. **Procedures and ATFM Treatment**

Nearly all respondents, 95% of them confirmed the existence of national or local procedures and 93% of the respondents reported that ATFM exemptions exist for medical flights, though the criteria and implementation differ between States and regions.

2.8.3. **Operational Prioritisation**

Approximately 87% of the respondents apply a prioritisation order placing emergency traffic first, followed by MEDEVAC/HOSP flights. The remaining 13% reported variations in this order, demonstrating that non-standard implementation persists.

2.8.4. **Coordination Reality**

Coordination practices vary widely, with several respondents relying on informal or system-based methods, particularly for cross-border medical flights.

2.9. The survey findings are further illustrated by a case from Canada, which demonstrates how inconsistent application of medical flight status indicators can affect day-to-day operational decision-making:

Winnipeg ACC routinely manages MEDEVAC operations serving remote and northern communities. Controllers reported recurring difficulty in distinguishing genuinely time-critical medical flights from non-urgent or positioning flights incorrectly filed as STS/MEDEVAC.

In practice, some operators default to the MEDEVAC indicator regardless of urgency, while the STS/HOSP indicator is underutilised or misunderstood.

This misclassification requires additional controller verification and coordination, increasing workload and reducing system efficiency. Over time, such practices risk diluting the operational significance of the MEDEVAC status and weakening its effectiveness for genuinely life-critical missions.

2.10. Survey responses and operational feedback indicate that confusion surrounding the HOSP status has, in some environments, resulted in an unintended binary interpretation of medical flights: either treated as urgent MEDEVAC operations or as routine traffic. This loss of nuance reduces the operational value of differentiated medical status indicators and can lead to inefficient prioritisation decisions.

2.10.1. Where HOSP is underused, non-urgent medical transport may receive inconsistent handling. Conversely, where MEDEVAC is over-applied, the operational urgency associated with life-critical missions risks being diluted. Both situations increase controller workload and reduce system predictability.

2.10.2. While harmonised definitions and eligibility criteria are essential, they are not sufficient on their own. Controllers and ATM systems must also be able to rapidly and reliably recognise the operational status of a medical flight through standardised status identification and notification methods combining system-based data (e.g. flight plan data, FF-ICE (Flight and Flow Information for a Collaborative Environment) elements, automation tags) and, where necessary, supporting operational communications. Without a globally harmonised approach to how medical flight status is displayed, transmitted and operationally interpreted, variations will continue across FIRs and systems. This reinforces the need for an IFATCA policy framework supporting harmonised procedures, including priority application, standardised status notification, and clear operational guidance for the use of STS/MEDEVAC and STS/HOSP.

2.11. Beyond the definition of medical flight status indicators, there is currently no globally harmonised method for ensuring operational awareness of those statuses across systems and ATS units. In practice, awareness may rely on a combination of flight plan data, system alerts, coordination messages, or direct controller–pilot communication, depending on regional implementation and system capability.

2.12. The absence of a standardised status notification framework can result in delayed recognition, inconsistent tactical handling and increased reliance on manual verification. As ATM environments transition toward FF-ICE and SWIM (System Wide Information Management) -enabled data exchange, the need for structured, system-supported and communication-backed status notification mechanisms becomes increasingly critical.

2.13. Eligibility operational criteria across certain States that differentiate the use for medical flight statuses are feasible in practice. For example, regulatory and procedural frameworks in States, such as Australia and the United States, distinguish between life-critical emergency evacuations and medical transport declared by competent medical authorities, supported by defined priority application and operational handling expectations. These implementations

provide practical evidence that harmonised definitions, enforceable usage conditions, and system-level integration of medical flight status indicators can be achieved without negatively affecting traffic efficiency or controller flexibility.

2.14. The transition toward FF-ICE represents a structural change in how flight information is generated, shared, and operationally consumed across ATM systems. By enabling structured, machine-readable data exchanges throughout the flight lifecycle, FF-ICE creates an opportunity to standardise not only the identification of medical flights but also the operational interpretation and system response to medical flight status indicators.

2.15. When medical status indicators such as STS/MEDEVAC and STS/HOSP are embedded within interoperable FF-ICE data elements, ATM systems and decision-support tools can automatically detect and respond to medical operations without reliance on local interpretation or purely verbal coordination. This supports earlier identification of time-critical missions, improves strategic flow planning and enhances continuity of operational handling across FIR boundaries.

2.16. The benefits of FF-ICE are further enabled through SWIM which allows real-time sharing of flight status information among ANSPs, flow management units and airport stakeholders. Within a SWIM-enabled environment, information regarding medical flight intent, urgency level and trajectory can be simultaneously visible across multiple systems, supporting proactive coordination, tailored sequencing and more informed tactical decision-making.

2.17. However, the operational effectiveness of FF-ICE and SWIM in this context depends on globally harmonised definitions, eligibility criteria and operational application of medical flight status indicators. Without common rules defining how STS/MEDEVAC and STS/HOSP influence automation logic, decision-support tools and controller procedures, digital systems risk amplifying existing inconsistencies rather than resolving them. This reinforces the need for internationally harmonised operational procedures and policy guidance to ensure that digital ATM environments support safe, predictable, and equitable prioritisation of medical flights.

2.18. To encourage global harmonisation on handling of HOSP and MEDEVAC flights, and to raise global awareness and alignment, we recommend that the following policy be added to the TPM:

Globally harmonised procedures should be developed regarding HOSP and MEDEVAC flights, including:

- **Application of priorities.**
- **Status notification.**
- **Clear eligibility criteria and explicit guidance for the use of STS/MEDEVAC and STS/HOSP.**

3. CONCLUSION

3.1. Despite the existence of ICAO provisions for identifying medical flights, the absence of globally harmonised operational definitions, eligibility criteria and handling procedures continues to result in inconsistent treatment of flights using medical status indicators. This fragmentation reduces predictability for controllers and flight crews, increases workload through additional verification and coordination, and creates operational risk by enabling both over-prioritisation and under-prioritisation of medical flights, particularly those supporting genuinely life-critical missions such as emergency evacuations or organ transport.

3.2. Operational experience, supported by controller survey data, demonstrates that while STS/MEDEVAC and STS/HOSP are widely recognised, their operational meaning and expected tactical treatment are not uniformly understood or applied. Inconsistent or inappropriate use of these indicators reduces their credibility, weakens prioritisation integrity, and increases reliance on ad-hoc judgement rather than predictable, system-supported operational behaviour.

3.3. As ATM environments transition toward greater automation and data-driven decision-making through FF-ICE and SWIM, the consequences of these inconsistencies will become more pronounced. Digital systems do not inherently resolve procedural ambiguity; instead, they risk amplifying existing inconsistencies if harmonised operational rules are not established. A coordinated global approach combining harmonised status definitions, standardised operational handling, clear status notification methods and system-level visibility is therefore essential to ensure that medical flight prioritisation remains safe, proportionate, and operationally effective worldwide.

3.4. Based on the regulatory review, survey findings and operational case studies presented in this paper, it is evident that while medical flight status indicators are widely recognised; their operational interpretation and application remain inconsistent across States, ANSPs, and systems. Therefore, there is a clear need for globally harmonised operational procedures, standardised status notification methods, defined eligibility, and prioritisation criteria. As a result, there is a necessity to create a policy within the TPM.

4. DRAFT RECOMMENDATIONS

4.1. It is recommended this policy is accepted and included in the TPM:

IFATCA TPM (NEW), Medical Flight Status
Globally harmonised procedures should be developed regarding HOSP and MEDEVAC flights, including: ● **Application of priorities.** ● **Status notification.**

- **Clear eligibility criteria and explicit guidance for the use of STS/MEDEVAC and STS/HOSP.**

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