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Post-exposure prophylaxis, STI testing and factors associated with follow-up attendance: a review of 4159 cases of acute post-sexual assault medical care

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ABSTRACT

Background Sexual assault (SA) is a prevalent issue with enduring consequences. Post-SA medical care mainly focuses on injuries, sexually transmitted infection (STI) prevention and detection, as well as preventing unwanted pregnancies. Swift access to post-SA medical care is vital with sexual assault treatment units (SATUs) streamlining this care. The primary aim of our study is to report on post-SA care provided at the national SATU network in Ireland with a secondary aim of analysing factors associated with follow-up attendance for STI testing.

Methods This is a retrospective cohort study of all acute attendances (<7 days from incident) at the national SATU network between 1 January 2017 to 31 December 2022.

Results A total of 4159 acute cases presented during the study period. Emergency contraception (EC) was administered to 53.8% (n=1899/3529) of cases, while postexposure prophylaxis (PEP) for chlamydia was given in 75.1% (n=3124/4159) and for HIV in 11.0% (n=304/3387). Hepatitis B vaccination was initiated in 53.7% (n=2233/4159) of cases. 1.4% (n=59/4159) of the attendees were referred to an emergency department for the treatment of injuries. Follow-up appointments were scheduled for 75.8% (3151/4159) of acute cases. 71.6% (n=2257/3151) attended follow-up. Certain factors were found to correlate with a higher likelihood of attending follow-up appointments: adolescents (p<0.0001), concern about drug-facilitated SA (DFSA) (p=0.01), no consumption of recreational drugs before the incident (p<0.0001), alcohol consumption prior to the incident (p=0.01), and not reporting the crime to the police (p<0.001). However, gender (p=0.06) and the presence of injury at time of primary attendance (p=0.97) were not predictive of likelihood of follow-up attendance.

Conclusion This study demonstrates that EC, chlamydia PEP, HIV PEP and hepatitis B vaccination were all administered at SATU. A small proportion of attenders required emergency injury care. Factors influencing attendance at follow-up include age, drug use, alcohol use and police involvement, highlighting the need for tailored patient-centred support.

INTRODUCTION

Sexual assault (SA) is common and it can have multiple and sustained consequences.^{1,2} Possible physical consequences include injury, sexually transmitted infections (STIs) and unwanted pregnancy.³ Medical care provided after SA mainly

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Sexual assault requires prompt medical care, facilitated by sexual assault treatment units (SATUs), focusing on injuries, sexually transmitted infection (STI) prevention, and detection and pregnancy prevention.

WHAT THIS STUDY ADDS

⇒ This study provides a comprehensive overview of medical care post sexual assault at Ireland's national SATU network, emphasising positive follow-up attendance rates, especially for STI testing.

⇒ It also identifies factors influencing follow-up attendance.

⇒ Factors including age, drug and alcohol use, and police involvement affected likelihood of attendance for review.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ The findings suggest a need for a patient-centred approach in post-sexual assault care, potentially influencing improvements in research, clinical practices, and policies to provide more effective and tailored support for survivors.

focuses on treatment of injuries, prevention of STIs and unwanted pregnancies. Combining acute medical care with the forensic examination (FE) for collection of samples for DNA analysis, has been shown to be less traumatic for the person who discloses sexual violence.⁴ Therefore, the need for rapid access to post-SA services is essential in order to mitigate these physical consequences in so far as possible. SA treatment units (SATUs)/SA referral centres (SARCs) are set up to streamline post-SA care.⁵ These units provide expert-led care including medical, forensic and follow-up STI testing for victims of SA. Affiliated rape crisis centres also offer and provide psychological support and follow-up care to all people attending acutely.

The primary aim of this study was to provide a descriptive analysis of the medical care received by these patients including the type of attendance (FE, health check or advice) as well as the provision of EC, HIV PEP, chlamydia prophylaxis and hepatitis B immunisation. Details on referral for further medical care and other services were also analysed.



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A secondary aim of this study was to analyse attendance rates at follow-up appointment (where scheduled), and to ascertain any similarities, differences or patterns among those who did or did not attend. The purpose of this secondary aim was to assess for any predictors of non-attendance to understand and improve patient engagement. Results from STI testing conducted at the first follow-up visit were also analysed.

METHODS

Study design

This is a national retrospective cohort study analysing the post-SA care received by people attending the SATU network in Ireland acutely (<7 days since the incident) over a 6-year period (1 January 2017 to 31 December 2022).

The study population consisted of all patients who had acute attendances (<7 days from incident) to the national SATU network in Ireland between 1 January 2017 and 31 December 2022 following an SA or a concern that an SA had occurred. Patients who attended but did not disclose an SA were excluded.

As the data were irrevocably anonymised, the Research Advisory and Guideline Group stipulated that informed patient consent was not required.

Study setting and population

In Ireland, there are six SATUs that comprise the national SATU network. These units provide care on a 24 hours a day, 365 days a year basis to anyone aged 14 years and above who discloses sexual violence or is concerned that they may have experienced sexual crime. The SATUs provide standardised care informed by national evidence-based guidelines, which are updated regularly based on international best practice.⁶

Initial attendance

Each person who attends the SATU has an initial assessment to ascertain whether urgent treatment of injuries and/or mental healthcare is required. If this is the case, onward referral to appropriate services is organised and a plan for post-SA care made with the primary healthcare provider. If the patient is deemed medically and psychiatrically stable, they can avail of any of the three SATU care options available [table 1](#).⁷

If an FE is performed (with or without police involvement), forensic samples are taken and any injuries present are

documented. FEs are performed by doctors or nurses with specialised training.

All patients who attend acutely, whether an FE has been conducted or not, are offered bespoke medical care according to their specific needs. SATU care is offered free of charge to patients, including medications dispensed on-site.

Medical care

Emergency contraception

EC is offered to anyone who attends the SATU who may become pregnant as a result of the incident. The most suitable method of EC will depend on patient factors (including preference), the time elapsed since the incident and the timing of any other unprotected sexual intercourse. The two types of contraception readily available in the SATUs are ulipristal acetate and levonorgestrel. Insertion of a copper intrauterine device is not currently routinely available in any unit, but staff endeavour to facilitate access to this in other healthcare settings if required.

STI prevention: prophylaxis for chlamydia/HIV and vaccination for hepatitis B

Prevention of STIs at SATU involves use of prophylactic medications and vaccines after possible exposure to an infectious agent. For the time period studied, prophylaxis was available for chlamydia (azithromycin), hepatitis B (vaccination) and HIV (antiretrovirals). Routine prophylaxis for gonorrhoea is no longer used due to concerns for emergence of antimicrobial resistance. Prophylaxis (azithromycin) for *Chlamydia trachomatis* was offered to all patients who had pharyngeal, vaginal or rectal penetration during the study period. However, in line with recent guidance, and with concern for development of antimicrobial resistance, SATUs ceased routine azithromycin chlamydia prophylaxis in June 2023.⁶ Changes in chlamydia rates will be monitored closely following this change in practice. hepatitis B immunisation is offered to all SATU patients not previously vaccinated. Risk assessment and consideration of HIV PEP is also performed. If deemed appropriate, a starter pack of 5 days of HIV PEP is given with onward referral within 120 hours to a specialist in infectious diseases or genitourinary medicine.

Injury/referral

All SATUs have a pathway in place whereby patients have access to a broad range of services/expertise which is immediately available if required (eg, emergency department referral/acute mental health assessment, etc). If the need arises, referral to the nearest emergency room/hospital can be arranged. Some of these needs are identified at initial presentation to the SATU, however, some may become apparent during the FE or subsequent follow-up visits.

Follow-up

Follow-up is arranged for any person that requires STI testing after a SA and/or for completion of the hepatitis B vaccination course. These include where there has been an established risk of STI transmission, that is, penetration of the vagina, rectum or pharynx with a penis or where there is a concern that one of these may have occurred.

This initial follow-up is arranged for 2–4 weeks after the incident in the SATU where they initially attended or at another SATU if that is more convenient for the patient. This first follow-up visit involves testing for chlamydia and gonorrhoea. Subsequent follow-up visits may be offered at 3 months and 6 months following the incident for HIV, syphilis and hepatitis

Table 1 Care options availed of by patients who attended the sexual assault treatment unit network (2017–2022)

Care option	Acute attendance <7 days from incident % (n=4159)	Non-acute incident >7 days from incident % (n=1166)
Option 1		
Attendance with police		
Forensic examination performed	75.1% (3122)	1.7% (20)*
Forensic examination not performed	1.6% (65)	26.2% (306)
Option 2		
Attended for health assessment	7.6% (317)	69.7% (813)
Option 3		
Storage of evidence with forensic examination	14.7% (612)	<1% (3)*
Advice	1% (43)	2% (24)

*A forensic clinical examination may have been performed in non-acute cases (>7 days since assault) to identify physical injuries that needed to be documented/reviewed.

Table 2 Emergency contraception (EC) administration at the Sexual Assault Treatment Unit (SATU) network

	Total number of cases with potential eligibility for EC* % (n=3529)
EC given	53.8% (1899/3529)
Attendance type	
Attended with police	81.0% (1538/1899)
Self-report/health check	6.1% (116/1899)
Storage of evidence (no police involvement)	12.9% (245/1899)
EC not given	43.7% (1542/3529)
Reasons EC not given	
No penile penetration	35.5% (547/1542)
Already effective contraception	36.4% (561/1542)
Hysterectomy	<1% (14/1542)
EC already given	19.8% (305/1542)
Postmenopausal	<1% (11/1542)
Declined	5.8% (89/1542)
Reason not recorded	1% (15/1542)
Not recorded	2.5% (88/3529)

*Instances of assault occurring within 5 days, to those individuals under the age of 51 years and of childbearing potential.

tests. Each SATU has local arrangements in place for contact tracing and infectious disease notification in the event of a positive test result.

Reminders are sent to patients prior to their follow-up appointment to improve attendances rates.

A standardised paper chart is created at a patient's initial SATU attendance; all pertinent details are recorded. After each SATU attendance, anonymised demographic and incident details are entered from the paper medical chart onto a national database. This database is a secure web-based system which is hosted in the HSE's (Ireland's National Health Service) data centre. The system is accessible to users on the HSE's internal private

network via a web browser. There are firewalls in place to prevent unauthorised access.

Study protocol and data analysis

Irrevocably anonymised patient demographic data as well as incident, attendance and follow-up details were imported into Microsoft Excel from the national SATU database.

The data were then coded and imported into SPSS. The SPSS software package (V.26; SPSS, Chicago, Illinois, USA) was used. Data are presented in both absolute numerical values and corresponding percentages where applicable. Descriptive bivariate analysis was performed to study associations between different characteristics of the assault/attendance to SATU and attendance for follow-up care. We report numbers, percentages and p values describing the probability that an association was due to chance. The χ^2 test was performed to compare relative frequencies. Logistical regression to assess factors for follow-up attendance with ORs and 95% CIs were calculated where relevant; statistical significance was defined as value of $p < 0.05$.

RESULTS

Attendance numbers

There were 5416 attendances to the 6 SATUs over the study period; 5387 people disclosed that they had experienced, or were concerned that they may have experienced, a SA. Of the attendees, 77.2% (n=4159) attended acutely (within 7 days of the incident), 21.6% (n=1166) attended non-acutely (>7 days after the incident) and in 62 cases the timing from the incident to attendance was not recorded. The care option for each attendance is depicted in [table 1](#). The 4159 acute attendances consisted of 3853 female, 282 male and 16 other genders. Gender was not recorded in eight attendances.

Table 3 Attendance at follow-up appointments of patients at the Sexual Assault Treatment Unit (SATU) network (2017–2022) based on demographic and incident details

	Total number*	% attended follow-up (n)	% did not attend follow-up (n)	OR	CI	P value
Female	2919	72.0% (2103)	28% (816)	1.32	0.98 to 1.77	0.0682
Male	213	66.2% (141)	33.8% (72)			
Adolescent attenders (<18 years old)	561	78.8% (442)	21.2% (119)	1.59	1.27 to 1.97	<0.0001
Adult attenders (≥18 years old)	2585	70.1% (1812)	29.9% (773)			
Disclosed that a sexual assault occurred	2492	72.8% (1815)	27.2% (677)	1.18	0.96 to 1.45	0.11
Were unsure a sexual assault occurred	526	69.4% (365)	30.6% (161)			
Disclosed they were concerned that a DFSA had occurred	548	76.6% (420)	23.4% (128)	1.31	1.06 to 1.63	0.01
Were not concerned or not sure whether DFSA had occurred	2355	71.4% (1682)	28.6% (673)			
Those that felt safe at home	2774	72.5% (2011)	27.5% (763)	1.525	1.16 to 2.03	<0.01
Those that did not feel safe at home	221	63.3% (140)	36.7% (81)			
Disclosed they had consumed recreational drugs in the 24 hours preceding the incident	577	64.8% (374)	35.2% (203)	0.66	0.55 to 0.81	<0.0001
Disclosed they had not consumed recreational drugs in the 24 hours preceding the incident	2472	73.5% (1817)	26.5% (655)			
Disclosed they had consumed alcohol in the 24 hours preceding the incident	2377	72.2% (1729)	27.8% (648)	1.25	1.05 to 1.50	0.014
Disclosed they had not consumed alcohol in the 24 hours preceding the incident	710	68.0% (483)	32% (227)			
Injuries present	1605	72.5% (1165)	27.5% (440)	0.99	0.84 to 1.18	0.97
No injuries present	1144	72.6% (831)	27.4% (313)			
Reported crime to police	2361	69.1% (1632)	30.9% (729)	0.59	0.49 to 0.72	<0.001
Did not report crime to police	790	79.1% (625)	20.9% (165)			

Logistical regression to assess factors for follow-up attendance with ORs and 95% CIs calculated where relevant; statistical significance was defined as a value of $p < 0.05$.

*The total for each category does not always equal the total number of people who were given follow-up as some data for that category may not have been recorded. DFSA, drug-facilitated sexual assault.

Medical care

Emergency contraception

SATUs recorded a total of 3529 attendances that met the criteria for EC. Those criteria were individuals aged 51 years and below who were at possible risk of pregnancy, and who were seen within 5 days of penile-vaginal penetration; 53.8% (n=1899/3529) of these received EC. Further details regarding the referral pathway for cases involving EC administration and the documented reasons for not giving EC are available in [table 2](#).

PEP for chlamydia

In total, 75.1% (n=3124/4159) of patients were administered azithromycin as chlamydia prophylaxis; 3.4% (n=143/4159) declined, it was contraindicated in 5.5% (n=228/4159) and in 14.6% (n=608/4159) it wasn't indicated (ie, no penile-vaginal, penile-oral, penile-anal penetration). In 1.3% (n=56/4159) of cases it was not recorded whether or not it was administered.

HIV postexposure prophylaxis

There were 3387 attendances to SATU within 72 hours of assault, and therefore for whom a HIV PEP assessment and consideration was indicated. Of these attendances, 90.8% (n=3074/3387) had a HIV PEP assessment completed. PEP was prescribed in 9.0% (n=304/3387) of cases. Of those that were offered follow-up in the SATU, 68.1% (n=207/304) of these attended the SATU for follow-up. Seventy patients were offered follow-up elsewhere (eg, infectious disease clinic).

Hepatitis B immunisation

Hepatitis B immunisation was commenced in 53.7% of attendees (n=2233/4159). It was contraindicated in 1.3% (n=56/4159), deferred in 9.4% (n=393/4159), declined in 9.5% (n=396/4159), deemed as not required in 23.7% (n=987/4159) and it was not recorded in 2.3% (n=94/4159).

Data for completion of the complete course of immunisation was not available.

Referral to other medical services

Of the patients 1.4% (n=59/4159) required admission to hospital due to physical injuries they had sustained; 0.6% (n=24/4159) required hospital admission due to mental health crisis.

Follow-up

Of the 4159 acute attendances to the SATU network, 75.8% (n=3151/4159) were offered and accepted a follow-up appointment at SATU. Of those patients who were not offered and/or did not avail of a follow-up appointment: 72 had declined, 504 opted to arrange their own follow-up, it was not indicated in 282 and 150 were marked as 'other reason'.

Of those given a follow-up appointment, 71.6% (n=2257/3151) attended follow-up; 28.4% (n=894/3151) did not. [Table 3](#) shows follow-up attendance rates for specific demographic/incident details and whether there are any significant associations.

The relationship of the assailant to the victim/survivor as well as the location of the assault and their attendance at follow-up is documented in [table 4](#). There was a statistically significant correlation between assailant-victim/survivor relationship and attendance at follow-up; however, there was no statistically significant correlation between location of assault and attendance at follow-up.

Table 4 Assault details (location/relationship of victim to assailant) of those who did and did not attend follow-up at the Sexual Assault Treatment Unit (SATU) network between 2017 and 2022

Variable (n=total for that variable)	% Attended follow-up (n=2221*)	% Did not attend follow-up (n=877*)	P value
Location of assault*			
Assailant's home (n=752)	71.5% (538)	28.5% (214)	0.244
Field/park (n=211)	77.7% (164)	22.3% (47)	
Home (n=605)	69.1% (418)	30.9% (187)	
Other outdoors (n=475)	71.6% (340)	28.4% (135)	
Other indoors (n=776)	73.1% (567)	26.9% (209)	
Vehicle (n=146)	66.4% (97)	33.6% (49)	
Unsure (n=106)	75.5% (80)	24.5% (26)	
Other outdoors (n=27)	64% (17)	37.0% (10)	
Assailant-victim relationship†			
Acquaintance <24 hours (n=523)	76.3% (399)	23.7% (124)	<0.001
Acquaintance >24 hours (n=616)	75.3% (464)	24.7% (152)	
Intimate partner (n=140)	57.9% (81)	42.1% (59)	
Ex-intimate partner (n=166)	59.6% (99)	40.4% (67)	
Friend (n=437)	74.4% (325)	25.6% (112)	
Stranger (n=810)	70.3% (570)	29.7% (241)	
Person in authority (n=21)	71.4% (15)	28.6% (6)	
Unknown (n=227)	71.8% (163)	28.2% (64)	
Family member (n=82)	67.1% (55)	32.9% (27)	
Other (n=39)	82.1% (32)	17.9% (7)	
The values of p indicate the overall association between the groups within the different variables, where a statistical significance was defined as value of p<0.05.			
*Location of assault not recorded in 53 incidents.			
†Description of assailant-victim relationship not recorded in 89 incidents.			

Results from STI testing at follow-up appointments

The following are the positivity rates of STI testing at follow-up appointments (n=positive results/total tests performed):

Chlamydia 1.8% (33/1827), syphilis 0.4% (7/1814), gonorrhoea 0.5% (9/1831), 'Other' STIs (eg, trichomonas) 3% (18/603), hepatitis B 0.2% (4/1815), hepatitis C 0.7% (12/1722).

No new diagnosis of HIV was made.

Data on pre-existence of chronic infections such as hepatitis C and syphilis is not available.

DISCUSSION

This study provides a comprehensive exploration of the post-SA care delivered to patients attending the national SATU network in Ireland, with an emphasis on the provision of EC, PEP for chlamydia and HIV and hepatitis B vaccination. Notably, this study revealed significant positive rates in follow-up attendance, specifically pertaining to STI testing. Our follow-up attendance rate of 72% is significantly higher than those reported by Holmes *et al* (31%),⁸ Rambow *et al* (27%),⁹ Herbert *et al* (10%)¹⁰ and Ackerman *et al* (35.5%).¹¹ Given the prevalence of SA and its enduring physical consequences, this study underscores the urgency of prompt, thorough and holistic medical attention according to patient need.

Medical care

The likelihood of pregnancy after an SA has been reported as 5%, with higher rates among adolescents.¹² Therefore, it is encouraging to see that the vast majority of those that warranted EC received it through their attendance to a SATU.

This research also demonstrates that a proportion of women are availing of EC through SATU when attending a health check or as an attendance for a FE without police involvement (see [table 2](#)). This underscores the ethos of the SATU to extend care to people regardless of whether or not they are engaging with the justice system at the time of attendance. In the absence of the SATU service, it is plausible that these women might forego seeking medical assistance, resulting in them missing out on the advantages of EC and indeed PEP/hepatitis vaccination.

No patient who attended all follow-up seroconverted to HIV during the study period. HIV transmission risk is influenced by a number of factors including mode of penetration,¹³ however, victims of SA are likely at higher risk given factors associate with SA such as genital trauma, lack of condom use and multiple assailant assault.¹⁴ Therefore, HIV PEP is an important consideration in post-SA care, particularly as information regarding the HIV status of an assailant is often absent. In our study, over 90% of patients had a HIV PEP assessment performed as per the national SATU guideline.⁶ HIV PEP was dispensed to 9%. A previous review found that adherence to HIV PEP post SA was low and therefore attending follow-up is important to encourage PEP adherence and promptly identify HIV seroconversion illness should this occur.¹⁵ The attendance rate for HIV PEP follow-up in SATU is 68% in this study. Although better than seen in other research, this is an area for improvement. There was no significant difference in attendance for follow-up in those who were prescribed HIV PEP and those that were not. HIV PEP follow-up rates for patients referred onwards to Infectious Diseases or Genitourinary Medicine Clinics are not available to us.

Follow-up

The majority of patients who accepted an appointment for follow-up attended. This is encouraging given the high prevalence rate of post-traumatic stress disorder,¹⁶ and the possibility of this negatively affecting follow-up rates. This study has identified certain factors which impact on likelihood of attendance. First, adolescent patients were shown to be significantly more likely to attend than adults. It is possible that the requirement for a legal guardian/parent to be present at the time of attendance after acute SA may encourage follow-up, or perhaps adolescents are more motivated to minimise potential long-term health effects of sexual violence. It may be that the timing of clinics is easier for adolescents to attend as they can avail of afternoon appointments.

Patients who felt safe at home were also significantly more likely to attend compared with patients who disclosed an assault by an intimate or ex-intimate partner ([table 3](#)). This finding is likely multifactorial, but it is important from a safeguarding perspective that healthcare providers are aware of this disparity and advocate for provision of appropriate supports. Individuals experiencing domestic sexual and physical violence may be prevented from attending follow-up due to fear of the perpetrator. The presence of an existing relationship prior to the sexual violence may mean that they perceive STI screening as unnecessary. Furthermore, some may have undergone relationship restoration and may perceive a reduced threat, leading to a decreased likelihood of attending. If these patients default from care, additional safeguarding measures may be necessary. This finding is worthy of ongoing review and analysis.

Those who disclosed illicit drug use in the 24 hours preceding the SA were also less likely to attend follow-up. This illicit drug use could either be sporadic recreational use or more long-term abuse. This observation reinforces the findings of a prior study.¹⁷

The reason for non-engagement may be chaotic lifestyle, or concern they could be met with negative judgement at follow-up consultations.

Patients who had not reported the incident to the police service were more likely to attend for follow-up, as were those who had not taken alcohol prior to the incident and those who were concerned that a DFSA had occurred. These factors are interesting to analyse and can be used to specifically encourage follow-up attendance in the under-represented groups going forward.

Sexually transmitted infections

Presence of infections before SA are indeterminable in this population who do not undergo STI screening at the time of first presentation because of concern that a pre-existing STI could denigrate the character of the victim in court.¹⁸ The incidence of STIs post assault is challenging to establish in sexually active adults. The forensic significance of an STI should be considered, especially in cases involving a complainant who has not previously been sexually active or where infection is detected at a previously sexually naive site (eg, first penile-anal penetration at assault). The research population, mostly receiving chlamydia prophylaxis and some HIV PEP, shows low STI rates.

It has previously been reported that cases of chlamydia identified at Irish SATUs fell from 23 (9.7% of those screened) in 2009 to 6 (1.8%) in 2016, attributed to increased use of azithromycin prophylaxis during that time period.¹⁹ Throughout the period of this study, there was excellent uptake of the offer of azithromycin prophylaxis, and chlamydia was only infrequently identified at follow-up. Now that guidelines for chlamydia prophylaxis have changed, it will be very interesting to keep these metrics under close review.

Hepatitis C was the most common bloodborne virus detected. While hepatitis C can be sexually transmitted, many of the cases identified at SATU were from urban areas where intravenous drug use is a more common cause of hepatitis C acquisition.

Strengths and limitations

This study's strength lies in its national representation and adherence to standardised guidelines in Irish SATUs, ensuring consistent care for a large patient cohort. Immediate data entry into the national database enhances data integrity. However, limitations include exclusive reliance on SATU attendees, potentially under-representing the broader population of SA survivors.²⁰ The retrospective analysis of available data and the possibility of selection bias due to self-reported incidents are additional considerations, given the documented range of false allegations in prior research.^{21 22}

CONCLUSION

This study provides a comprehensive overview of post-SA medical care at Ireland's National SA Treatment Unit (SATU) network, emphasising positive follow-up attendance rates, especially for STI testing. Strengths include national representation and adherence to guidelines, while we acknowledge the possibility of under-representation and retrospective analysis as potential limitations. This study highlights effective provision of EC through SATUs, even for those not in the justice system, maximising the opportunity to assist. Additionally, it illustrates the feasibility of providing HIV PEP in post-SA care.

While reporting low overall STI rates, routine use of chlamydia prophylaxis occurred during the study period. Factors affecting follow-up, such as age and feeling safe at home, are discussed, emphasising the need for continuous evaluation to improve person-centred follow-up strategies.

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REFERENCES

- Dworkin ER, Jaffe AE, Bedard-Gilligan M, *et al*. PTSD in the year following sexual assault: a meta-analysis of prospective studies. *Trauma Violence Abuse* 2023;24:497–514.
- Rivara F, Adhia A, Lyons V, *et al*. The effects of violence on health. *Health Aff (Millwood)* 2019;38:1622–9.
- Jina R, Jewkes R, Munjanja SP, *et al*. Report of the FIGO working group on sexual violence/HIV: guidelines for the management of female survivors of sexual assault. *Int J Gynaecol Obstet* 2010;109:85–92.
- Organization WH. Guidelines for medico-legal care of victims of sexual violence; 2003.
- Eogan M, McHugh A, Holohan M. The role of the sexual assault centre. *Best Pract Res Clin Obstet Gynaecol* 2013;27:47–58.
- SART. National guidelines on referral and forensic clinical examination following rape and sexual assault (Ireland), 5th ed; 2023.
- Kane D, Pucillo C, Maher N, *et al*. Collection and storage of forensic evidence to enable subsequent reporting of a sexual crime to the police "option 3" -An Irish experience. *Ir J Med Sci* 2021;190:1591–6.
- Holmes MM, Resnick HS, Frampton D. Follow-up of sexual assault victims. *Am J Obstet Gynecol* 1998;179:336–42.
- Rambow B, Adkinson C, Frost TH, *et al*. Female sexual assault: medical and legal implications. *Ann Emerg Med* 1992;21:727–31.
- Herbert CP, Grams GD, Berkowitz J. Sexual assault tracking study: who gets lost to follow-up? *CMAJ* 1992;147:1177–84.
- Ackerman DR, Sugar NF, Fine DN, *et al*. Sexual assault victims: factors associated with follow-up care. *Am J Obstet Gynecol* 2006;194:1653–9.
- Holmes MM, Resnick HS, Kilpatrick DG, *et al*. Rape-related pregnancy: estimates and descriptive characteristics from a national sample of women. *Am J Obstet Gynecol* 1996;175:320–4.
- Downs AM, De Vincenzi I. Isabelle de Vincenzi for the European study group in Heterosexual transmission of HIV. Probability of Heterosexual transmission of HIV: relationship to the number of unprotected sexual contacts. *J Acquir Immune Defic Syndr Hum Retrovirol* 1996;11:388–95.
- Linden JA, Oldeg P, Mehta SD, *et al*. HIV postexposure prophylaxis in sexual assault: current practice and patient adherence to treatment recommendations in a large urban teaching hospital. *Acad Emerg Med* 2005;12:640–6.
- Chacko L, Ford N, Sbaiti M, *et al*. Adherence to HIV post-exposure prophylaxis in victims of sexual assault: a systematic review and meta-analysis. *Sex Transm Infect* 2012;88:335–41.
- Resnick HS, Kilpatrick DG, Dansky BS, *et al*. Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *J Consult Clin Psychol* 1993;61:984–91.
- Skjælaaen K, Nesvold H, Brekke M, *et al*. Sexually transmitted infections among patients attending a sexual assault centre: a cohort study from Oslo, Norway. *BMJ Open* 2022;12:e064934.
- Ledray LE. Sexual assault nurse clinician: an emerging area of nursing expertise. *AWHONNS Clin Issues Perinat Womens Health Nurs* 1993;4:180–90.
- Marshall D, Holmes A. *Detection of Sexually Transmitted Infections following Sexual Assault and Rape in Ireland*. Dublin: IUSTI World and European Congress, 2018.
- Kruttschnitt C, Kalsbeek WD, House CC. Estimating the incidence of rape and sexual assault; 2014.
- Lisak D, Gardinier L, Nicksa SC, *et al*. False allegations of sexual assault: an analysis of ten years of reported cases. *Violence Against Women* 2010;16:1318–34.
- Goodyear-Smith F. Who makes false allegations and why? The nature, motives, and mental health status of those who wrongly allege sexual assault. *Current Practice in Forensic Medicine* 2022;21–39.