HCR-20^{V3}

Assessing Risk for Violence

Introduction to basic concepts

Learning Objectives

- Understand the development and key principles of the SPJ approach to risk assessment and risk management.
- Familiarity with the structure and administration of the HCR-20 V3
- Develop skills in formulation and management

References

- HCR-20 V3
- DOH – Best Practice in Managing Risk (2007)
- P.D. Scott – Assessing Dangerousness in Criminals
- Otto and Douglas – Handbook of Violence Risk Assessment
- Maden – Treating Violence – a guide to risk management in mental health
- Bloom and Webster – Essential Writings in Violence Risk Assessment and Management
- Webster, Haque and Hucker – Violence Risk - Assessment and Management

DANGEROUSNESS
PETER SCOTT 1977

- An elementary practical guide
- “an unpredictable and untreatable tendency to inflict or risk irreversible injury or destruction” (Scott 1977)
- “a dangerous concept”
- OFFENDER + CIRCUMSTANCES + VICTIM
- Patience, persistence and thoroughness, acumen

VIOLENCE

Actual, attempted, or threatened infliction of ***bodily harm*** of another person that is ***deliberate*** and ***wilful*** (or ***reckless*** - where there is awareness of potential for harm to others)

Includes

- both ***physical*** and ***serious psychological harm*** that "substantially interferes with … health or well-being"
- threats: communications and behaviour that cause people to experience fear of harm to themselves or others

Excludes

- damage to property or animals *unless intended to cause fear of harm or severe psychological harm to others*
- *proportional acts in self defence/defence of others*
- *legally sanctioned violence (sport,military, law enforcement)*

RISK

A threat or hazard that is ***incompletely understood***, and thus whose occurrence can only be forecast with ***uncertainty***.

The Royal Society

- Risk - the probability that a particular adverse event occurs during a stated period of time.

- Detriment – a numerical measure of the expected harm or loss associated with an adverse event. (Risk x harm)

Risk vs Uncertainty (Knight 1921)

- Risk – You know the odds, but you don't know for sure what will happen.

- Uncertainty – you don't know the odds

In clinical practice the odds are rarely available or accurately defined, therefore uncertainty is inescapable.

RISK

- Dynamic and Unstable
- Varies – time/circumstances
- Uncertain – not the same as making a prediction
- Likelihood x Harm

Why assess risk?

- Facilitate clinical management
- Make better decisions
  - Improve consistency
  - Improve transparency
  - Protect public
  - Protect patient
  - Protect ourselves - liability management – defensible decisions
- Prevent adverse outcomes (rather than prediction)

Prediction of rare events is difficult, but prevention can be easy.

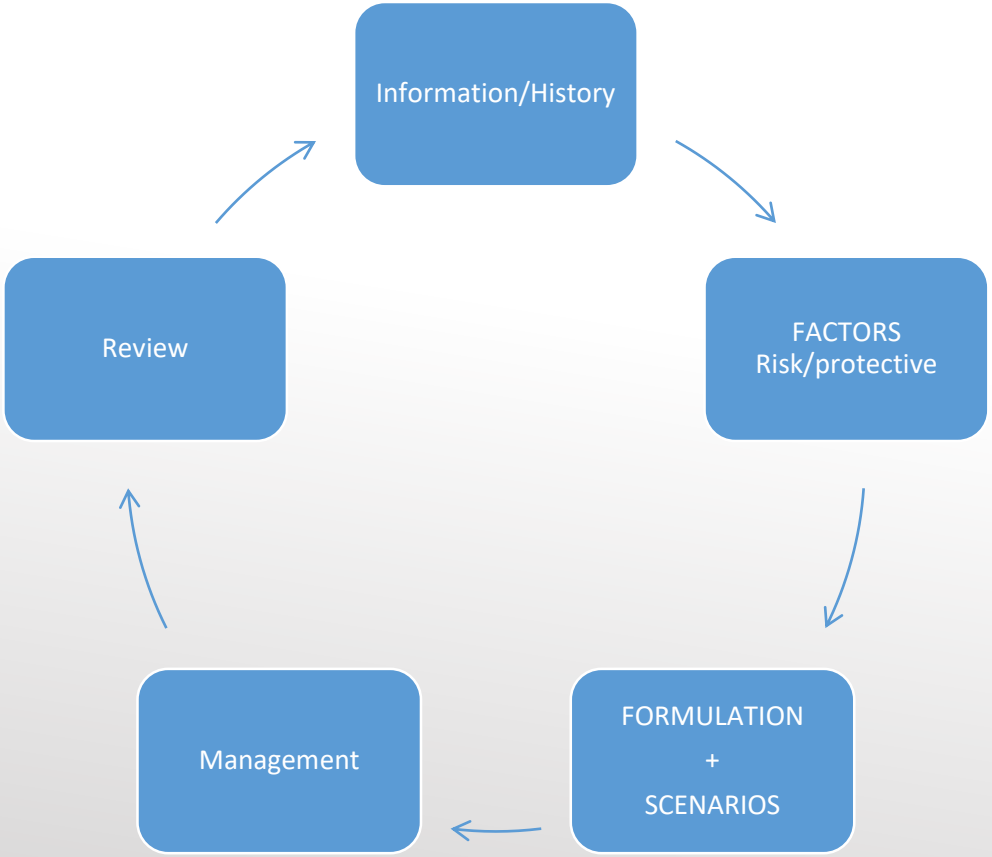
Components of Risk

- Consider:
  - nature (what?)
  - victims (who?)
  - circumstances (what makes it more or less likely?)
  - motivators/drivers (why?)
  - likelihood (probability?)
  - frequency (how often?)
  - duration (for how long?)
  - trajectory (increasing or decreasing
  - seriousness (what potential damage?)
  - imminence (when?)

DEFENSIBLE DECISIONS

- Best practice guidelines, policies and procedures
- Evidence – research and clinical
- Transparent
- Clearly documented
- Shared

RISK ASSESSMENT/MANAGEMENT
Dynamic, cyclical process



Components of effective risk assessment procedures

- Multiple sources of information
- Uses both static and dynamic variables
- Comprehensive
- Comprehensible/Transparent
- Evidence based
- Acceptable to commissioners, practitioners and patients
- Consistent
- Flexible
- Accurate
- Informs risk management
- Results in reduction of harm

DOH – Best Practice in Managing Risk 2007

- Decisions based on knowledge (evidence, patient, social context, patients' experience, clinical judgement)
- Carefully constructed risk management plans
- Collaboration with patient & carers
- Recognition of patient's strengths
- Organisational strategy
- Flexible preventative strategies
- Consider general and specific risks
- Mental Health Legislation
- Detailed description of risks and actions to be undertaken in crisis
- Tools - Structured Clinical Judgment
- Planning interventions
- Sensitivity to diversity
- Dynamic approach
- Multidisciplinary/Multiagency
- Training
- Communication

DOH – Best Practice...Summary

- Clinical decisions should be based on the best research evidence
- Engage patients in partnership
- Assessment and management must be flexible, dynamic and responsive
- Plan ahead
- Team exercise
- Focus on prevention rather than prediction
- Address structural, procedural and organisational factors as well as individual factors

EVIDENCE

Clinical
- history
- observations

Research
- statistics
- theory

- *Narrow view of evidence* (Actuarial approach)

Problem = operator (bias, subjective, error prone)

Solution = simplify the task using empirical research to eliminate/minimise fallible human judgement.

- *Broad view of evidence* (SPJ)

Problem = task (complex, uncertain, inadequate/flawed/incomplete evidence)

Solution = use empirical evidence to support clinical judgement.

Violence and Psychosis

- Taylor and Gunn (1984)
  - Psychosis – Much commoner in violent remand prisoners
  - Homicide 11%
  - other violence 9%

- Shaw et al 2006 - prevalence of scz in homicides – 5%

- Swanson et al 1990 – ECA study – Violence in last year
  - gen pop – 2%,
  - Scz – 8%,
  - scz +substance misuse or PD – 13%

- Other studies – relative risk of violence in Scz - 4-6x

Violence and Psychosis

- Maden 2004 - Risk of violence in psychotic mental illness is comparable to risk of lung cancer in smokers

- Maden 2007 - Incidence of homicide in scz – 1/20000 per annum. Assuming course of 20 years, lifetime risk of 1 in 1000.

- UK700 - Over 2 years – 20% schizophrenic patients committed assaults; 60% behaved violently.

MacArthur Violence Risk Assessment Study

12 month follow-up of 1136 general adult pts discharged into the community (3 US cities)

- Violence is common in mental health populations – Assault - 30% in 1 year – mostly at home, but mostly associated with initial acute episode (most admissions were brief with patients still symptomatic at point of discharge)
- Substance misuse is more important than mental illness as a cause of violence – common in this sample
- Psychopathy (PCL-SV) was the best single predictor of violence
- Violence in mentally disordered is associated with many of the same factors as in the general population (history, social factors, demographics etc)

Psychosis – pathways to violence

Coid et al (2013) East London first episode psychosis study.

(JAMA Psychiatry. 2013 May;70(5):465-71)

458 adult patients with first-episode psychosis.

Prevalence of violence was

- 38% during 1year period
- 12% of the sample engaged in serious violence
- AFFECT
  - Anger (due to delusions) was the only affect that was positively associated with violence. (31% of the minor violence; 56% of the serious incidents)
  - Elation, anxiety and fear were not associated with violence.
- CONTENT of delusions associated with serious violence (mediated by anger):
  - persecution ($z = 3.09$, $P = .002$); being spied on ($z = 3.03$, $P = .002$); conspiracy ($z = 2.98$, $P = .002$)

Conclusions:

- Anger due to delusions is a key factor that explains the relationship between violence and acute psychosis.
- Highly prevalent delusional beliefs implying threat were associated with serious violence, but they were mediated by anger.

PREDICTION

Clinical Prediction

Baxtrom – Steadman + 1972/4

- 967 patients – followed up 4 years
- 16 convictions in total – 1 assault; 1 robbery
- 50% in civil hospitals
- 3% in forensic settings
- 20% violent on at least one occasion
- 6 characteristics predicted violence
  - Juvenile offending
  - Number of previous arrests
  - Previous convictions
  - Previous convictions for violence
  - Severity of original offence
  - Age (-)

Monahan 1981

Review of early research on (unstructured) clinical prediction of violence:

> "...psychiatrists and psychologists are accurate in no more than one out of three predictions of violent behaviour over a several-year period among institutionalised populations that had both committed violence in the past (and thus had high base rates for it) and who were diagnosed as mentally ill."

Monahan (1981)

If you want to be *right* most of the time, the correct strategy is to predict that no patients will be violent.

But...

- Predictions made by mental health professionals are reliably better than chance
- Lidz, Mulvey and Gardner 1993 –
  - Psychiatric ER
  - 6 month follow-up
  - Predicted violence vs comparison group
  - for male patients – 53% in predicted group vs 36% in controls
  - For female patients – predictions of no value.

DOH (2007) – “Decisions about care and security should not be based simply on the largely unstructured clinical approach”.

ACTUARIAL METHODS – EMPIRICAL EVIDENCE

Simplify task and eliminate operator error.

- Based on large, meta-analytical studies
- Address risk on group level
- Statistical identification of risk factors
- Empirical, objective, reliable, structured tools
- Variables which have proven predictive value in relation to the outcome being measured.
- Transparent
- Good predictive power over defined time periods on group level

criticisms of actuarial approach

Ignores uncertainty, complexity, individuality, context and action.

- Mostly static factors
- Exclude other variables
- Tendency to dichotomise patients – focus resources on “high risk group”, ignore “low risk group”. (Where do most adverse events occur?).
- Ignore uncertainty, complexity, individual characteristics, context
- Ignores impact of interventions/relapse prevention strategies.
- Mechanistic – disengages assessor.
- Limited use in formulating individual management plans.
- Narrowly defined samples – not necessarily generalisable.
- Errors in applying general to the specific

Yang Wong and Coid 2010

- Meta analysis of 9 Risk Assessment Tools
- All tools - Moderate level of predictive accuracy
- OGRS and HCR-20 outperformed PCL-R
- Factor 1 Psychopathy – not predictive
- “Risk management and violence reduction interventions require the clear understanding of causation”

YANG WONG AND COID (2010)

INSTRUMENT	AUC (%)
OGRS	71
HCR-20 (Version 2)	71
RM2000V	70
VRAG	68
PCL:SV	68
PCL-R/PCL:SV FACTOR 2	67
H10	67
PCL-R	65
C5	66
R5	66
PCL-R/PCL:SV FACTOR 1	56

Coid et al 2011

- “Most items in structured risk assessment instruments do not predict violence”
- PCL-R; V-RAG; HCR-20 – most items not independently predictive
- “glass ceiling” on risk assessments which incorporate historical/static risk factors (AUC – 0.7-0.8)

Coid et al 2011 Predictive items

- PCL-R –
  - Need for stimulation/prone to boredom
  - Poor behavioural controls
  - *Criminal versatility*
- V-RAG
  - Psychopathy
  - *Younger age at index offence*
  - Non-violent offence score
  - *History of alcohol problems*
  - *Not Female victims*

- HCR-20
  - Young age at first violence (H2)
  - Substance misuse (H5)
  - *Early maladjustment (H8)*
  - Prior supervision failure (H10)
  - *Negative attitudes (C2)*
  - Impulsivity (C4)
  - Exposure to destabilisers (R2)
  - Non-compliance with remediation attempts (R4)

THE BASE RATE PROBLEM

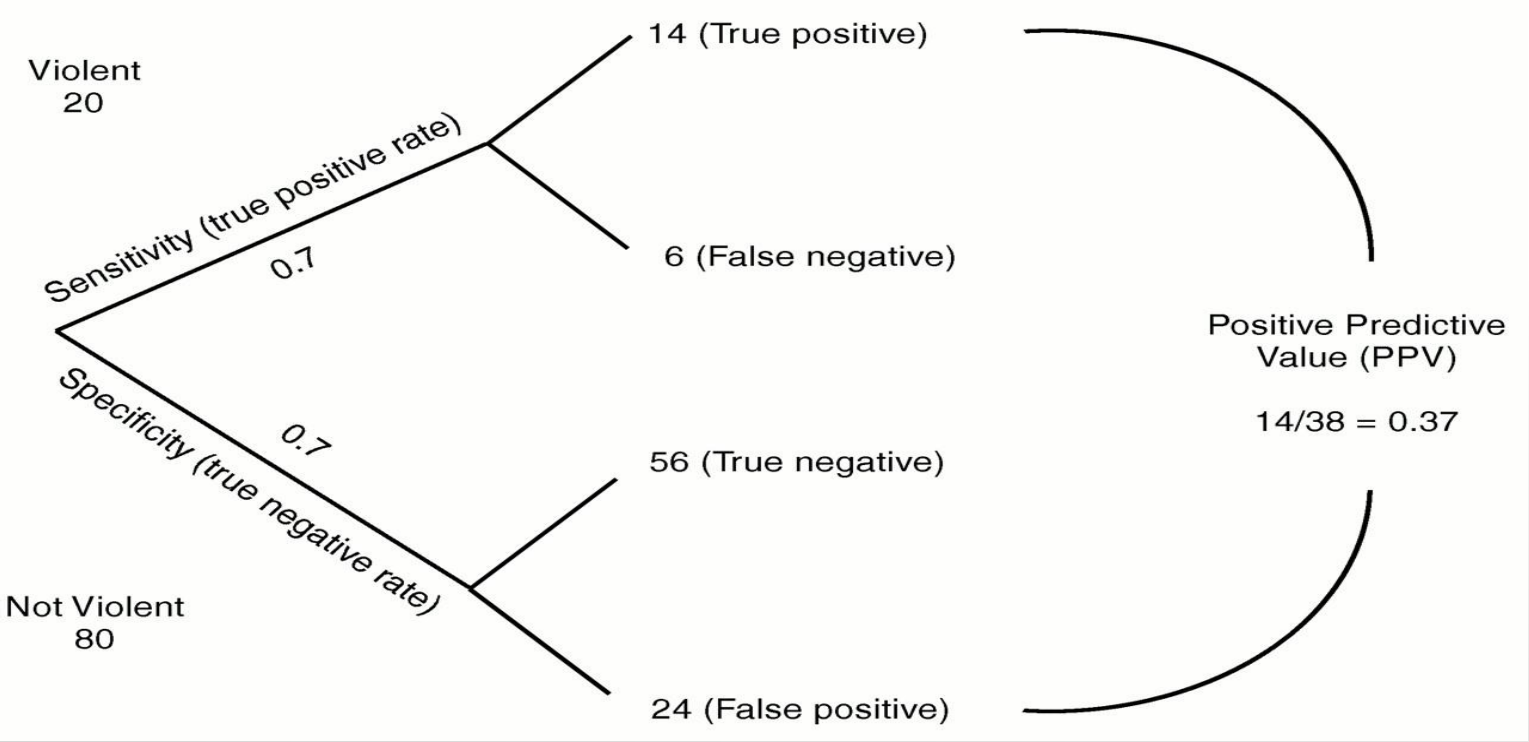
	Violent	Non-violent
Test +	TRUE POSITIVES	FALSE POSITIVES
Test -	FALSE NEGATIVES	TRUE NEGATIVES

- Sensitivity – measure of test's ability to identify those who will commit violence (TP/TP+FN)
- Specificity – measure of test's ability to identify those who do not commit violence (TN/FP+TN)
- Positive Predictive Value – proportion of violent individuals amongst those testing positive (TP/TP+FP)

PROBABILITY TREE

- Sensitivity and Specificity = 70%
- Base Rate in population 20%

14	**6**
24	56



Base rate 20%; Sensitivity/Specificity 70%

- PPV = O.37
  - Prediction will be wrong 63 times out of 100
  - Almost twice as many false positives (24) as true positives (14)
  - If you attempt to *predict* violence in individuals using the best tools available, you will be wrong more times than you are right.

Sensitivity and Specificity 75%

Base rate	PPV
1%	0.03
5%	0.14
10%	0.25
20%	0.43
30%	0.56

PREDICTING RARE EVENTS

- Maden 2007 - Incidence of homicide in schizophrenia – 1/20,000 per annum. Lifetime risk is ~ 1 in 1,000.
- Population 20 Million – 200,000 schizophrenics – 200 will kill
- Screening test – 80% sensitivity/specificity

	• **KILL**	**DON'T KILL**
Test +	TP **160**	FP **39,160**
Test -	FN **40**	TN 159,840

Hart, Michie and Cooke 2007
Precision of actuarial risk assessment instruments
BJPsych 190 (supp 49)

"The margins of error for risk estimates made using the tests were substantial, even at the group level. *At the individual level, the margins of error were so high as to render the results virtually meaningless*"

Niels Bohr – "Predicting is very difficult, especially about the future".

Rates of violence in patients classified as high risk by structured risk assessment instruments Singh et al (2014)

- After controlling for time at risk, the rate of violence in individuals classified as high risk by SRAIs shows substantial variation.
- “It does not seem possible to use SRAIs to assign reliably a predetermined numerical probability to the potential for an individual to act violently.”
- The results of individual risk assessments should be reported with explicit acknowledgement of the possible sources of error associated with their use.

Conan Doyle

- “While the individual man is an insoluble puzzle, in the aggregate he becomes a mathematical certainty. You can, for example, never foretell what any one man will do, but you can say with precision what an average number will be up to. Individuals vary, but percentages remain constant.”

The Sign of the Four

What do actuarial tools do?

- Place individuals into groups in which a known proportion of individuals will be violent

BUT

- won't tell you whether the ***individual*** you are assessing will be a **true positive** or a **false positive**

So, what can we do?

We can say

- What it is we are concerned about.
- Why we are concerned about it.
- What we think should be done about it.

(Hart)

Evidence: the broad view
STRUCTURED PROFESSIONAL JUDGEMENT (SPJ)

- **Guidelines**, not tools to measure risk or predict who will do what
- **Clinical Judgement** informed, guided and structured by evidence from scientific literature, theory and clinical knowledge
- Acknowledges **uncertainty** and complexity
- Whole **process** approach: assessment -> formulation -> management
- Can **monitor change** in clinical and situational factors
- Guides risk **management** strategies