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Young people aged 0-17: Neuroscience and cognition to break cycles of radicalization

Report for the Pentagon Joint Staff Strategic Multilayer Assessment Group

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This report is relates to a coherent family of products that together provide a framework for successful influence across the spectrum of competition, including the Grey Zone. All are available from www.intelligentbiology.co.uk. These include:

- Wright, ND (2019) ***From Control to Influence: Cognition in the Grey Zone*****,** Intelligent Biology.
- Ed. Wright ND, (2018) ***AI, China, Russia and the Global Order****: Technological, Political, Global, and Creative Perspectives,* U.S. Dept. of Defense Joint Staff.

About the author

Dr Nicholas Wright is affiliated with Georgetown University, University College London (UCL), Intelligent Biology and New America. His work combines neuroscientific, behavioural and technological insights to understand decision-making in politics and international confrontations, in ways practically applicable to policy. He regularly works with Governments. He has numerous academic and general publications. He received a medical degree from UCL, a BSc in Health Policy from Imperial College London, has Membership of the Royal College of Physicians (UK), has an MSc in Neuroscience and a PhD in Neuroscience both from UCL.

Contents

This report responds to **Question B1** posed by CENTCOM: *How to break the cycle of radicalization, particularly with children who know no other social system / model of governance? Are there possible graduated steps to deradicalization, i.e., judicial efforts, penal efforts, religious efforts, familial efforts, treatment efforts, that can be applied?*

Executive summary

Cycles of radicalization and violent behaviour have a fundamentally cognitive dimension. What happens inside the minds of vulnerable young people aged 0 to 17 years – and how can we help such young people amongst the millions of Syrian refugees and Internally Displaced Persons (IDPs) in order to break these cycles?

Here I apply insights from cognition and neuroscience. The report has two parts.

Part I examines the "brain terrain" created by the developing human brain, in which planners must operate and that brings both **challenges and opportunities**.

Human brains develop from 0-25 years, during which distinct growth phases occur – and these require different policies. Policymakers can break this process down using three factors: human biology, culture and political/legal distinctions.

Recommendation One: *CENTCOM should focus policies on each of three distinct periods: 0-4 earliest years, 5-12 younger children, and 13-17 adolescents.*

Young people can be very resilient – and they benefit from help. Psychiatric evidence and historical cases (e.g. Germany or South Korea after devastating prolonged wars) illustrate this resilience. Afford young people opportunities.

Recommendation Two: *CENTCOM should see the opportunity new generations present – and afford them opportunities for plausible non-radical or violent futures, by helping build environments with basic education and social support.*

Part II examines specific interventions. Limited direct evidence evaluates interventions for young refugees or IDPs in the developing world (e.g. much conflates work in rich/developing world settings, or with child soldiers/terrorists/radical groups). Thus, I provide convergent evidence from related fields like **mental health** and **criminology** – and I stress **dual use** aspects, e.g. providing routine is foundational in mental health everywhere, and also in deradicalization programmes in Pakistan.

For many of these interventions CENTCOM can provide security, funding and leadership, but success *requires* internal (e.g. USAID) and external (e.g. allies, charities, local) partners.

Recommendation Three: *A hierarchy of interventions should be used – first build the foundations!* E.g. giving young people in camps places to go and routine likely matters more than giving them wafer-thin versions of rich world deradicalization programmes, but still leaving them with few routines or safe places. Dual-use education or mental health programmes likely help break cycles of radicalization.

Recommendation Four: *Cost effective interventions – use, develop and evaluate affordable and scalable interventions.* Global mental health provides practical developing world templates, e.g. not using expensive doctors but training alternative practitioners, and there may be roles for digital aides.

Recommendation Five: *Enhance the information environment.* E.g. research young target audiences' viewing and develop Arabic resources for each age.

Introduction

"[A] primary object … should be the education of our youth in the science of government. In a Republic … what duty more pressing on its legislature than to patronize a plan for communicating it to those who are to be the future guardians of the liberties of the country?"

- George Washington's 8th annual address[1]

What is going on inside the minds of vulnerable young people aged 0 to 17 years? How can we help such young people amongst the millions of Syrian refugees and IDPs currently in diverse environments—from Al-Hol camp to Turkish or Lebanese cities—in order to break cycles of radicalization and violence? Understanding cognitive dimensions is crucial because cycles of radicalization have a fundamentally cognitive dimension, as do violent behaviours more broadly in this brutal civil war. Helping young people is crucial because as illustrated by long-term challenges in Afghanistan since 2001, Iraq since 2003 or Syria since 2011, these challenges are generational.

Part I aims to give policymakers a better understanding of how the brain and mind of young people develops, using the latest neuroscience and cognitive science work. This is the terrain in which policymakers must operate.

Part II focusses on specific cognitive interventions. I use convergent evidence, in particular from mental health and developing world contexts.[2] I provide practical policy recommendations.

Part I. The "brain terrain" – understanding the challenges and opportunities

Different ages; different policies – the human brain in young people

A six year old is not a sixteen year old. Human brains develop from 0-25 years, during which distinct growth phases occur – and these distinct phases require different policies. But how can CENTCOM policymakers break this complex terrain down to produce a practically useful roadmap?

I suggest we can combine three factors: (1) human biology; (2) nurture or culture; and (3) salient political or legal distinctions.

(1) Human biology: Homo sapiens is a slow-maturing species with distinct growth phases. Significant neurocognitive development continues from birth up to around 25 years of age. Box 1 describes these brain changes.

[1] https://avalon.law.yale.edu/18th_century/washs08.asp

[2] I identified key relevant insights from psychology and neuroscience; conducted a review of best practice for their implementation in the field; and combined this with historical and contemporary case studies. I also sought evidence from psychiatrists who work with children and in the Middle East.

Puberty is one crucial transition during this time, which now occurs at around 11 or 12 years old in the developed world[3], and it reflects a move from younger childhood into *adolescence*. We can be confident that adolescence is a significant, distinct biological period of development across cultures based on at least three sources of evidence.[4]

- Firstly, adolescence is associated with typical behaviours—e.g. risk-taking, self-consciousness and peer influence—across many cultures. One large recent study, for instance, tested over 5000 people aged 10-30 across 11 countries, which revealed remarkably consistent developmental trajectories across countries including Jordan, Kenya, the Philippines, US, China, India and Columbia (Steinberg et al., 2018).
- Second, non-human animals show similar adolescent-typical behaviours such as greater risk-taking with peers.
- Third, across history writers like Aristotle, Shakespeare or Jean-Jacques Rousseau (1712-78) keep describing the same phenomena.

(2) Nurture or culture: In addition to biological growth, development from birth to adulthood (around 25 years old) also rests on major social role transitions. That is, nature/biology matters *and* nurture/culture matters. Marriage and parenting reflect one major social transition point, for instance, and this hasn't remained static. Globally, over the past half century the average age of marriage increased markedly in all but the poorest countries (Sawyer et al., 2018).

(3) Politically and legally salient thresholds: Policymakers at CENTCOM and partner organisations must also consider politically and legally significant aspects. One political challenge is that whilst many in Western publics would consider an "adolescent" differs from a "child"—e.g. reflected in typical dictionary definitions[5]—it is not that simple in international law. The UN Convention on the Rights of the Child (CRC) defines a child as a person under 18 years old[6] - and with the US the only country not ratifying it, the CRC is the most widely ratified human rights treaty in history.[7] Thus, rightly or wrongly, the term "child" or "children" may then lead to differing perceptions when applied, for instance, to seventeen year old male refugees. Various other terms have been used by different national or international official bodies such as the UN, e.g. "Youth" (ages 15-24) or "adolescence" (10-19).

Putting the three factors together: I suggest focussing on aged 0 to under 18 (despite biological arguments for extending to 25 years), to avoid the considerable extra legal and political complexities above that age threshold. I also suggest referring to the whole range with the generic term "young people" rather than

[3] Puberty is a process often occurring over some four years. Onset varies within populations, and varies between populations depending on socioeconomic factors. These figures are typical for the UK or US.
[4] For a good and highly accessible review including these three sources of evidence see (Blakemore, 2018).
[5] E.g. Child: 'a young person especially between infancy and puberty' (Merriam Webster online, Dec 2019).
[6] Article One: "For the purposes of the present Convention, a child means every human being below the age of eighteen years unless under the law applicable to the child, majority is attained earlier." (*OHCHR | Convention on the Rights of the Child*, n.d.)
[7] https://www.aclu.org/blog/human-rights/treaty-ratification/theres-only-one-country-hasnt-ratified-convention-childrens

"children" as this, rightly or wrongly, can lead to political misperceptions. Within that age range, we can then divide into three key age groups.

Recommendation One: *CENTCOM should focus policies on each of three distinct periods: 0-4 earliest years, 5-12 younger children, and 13-17 adolescents.*

Key features of these age groups include:

- ***0-4 Earliest years children:*** Rapid neurological development occurs. Crucial for policymakers, considerable bodies of evidence support cost-effective early years interventions that can have lasting educational and social benefits.[8] Routes to influence in this group focus more on family.
- ***5-12 Younger children:*** At least three points are policy relevant here. (a) It is unclear whether younger children really develop radicalized belief systems or whether they simply regurgitate views and behaviours expected and taught by parents and other adults.[9] Thus, framing in terms of "deradicalization" may not be most productive. (b) Routes to influence this age group involve the family and school environment, with peers less prominent than in adolescence. Developing the school environment and materials is thus crucial. Good evidence suggests influence has profound impacts on children (Gass & Seiter, 2013), hence the key debates globally around school textbooks and mixing of ethnic groups in childhood. (c) Disengagement programmes are expensive, but likely cheaper and take less time than for adolescents (Bloom & Horgan, 2019, Chapter 3).
- ***13-17 Adolescents:*** Increased risk-taking, self-consciousness and peer influence are key features here – all with implications for policy. *Risk-taking* is higher amongst adolescents than children and adults, and this depends on context. For example, adolescents take more risks than adults when a *peer* is with them but not when alone. Such behaviour also relates to social factors, novelty and sensation-seeking more than simply risk (Steinberg, 2004). Thus, age affects the impact of influence. It is difficult to tease apart how far adolescents and young adults are more directly susceptible to influence than their elders, or whether they are more likely to make high risk decisions in response to influence – but they *are* at heightened risk of highly negative consequences from malign influence. The developing *sense of self* in adolescence (Blakemore, 2018, Chapter 2) suggests that interventions related to identity may work well (see Skye Cooley's work for this current SMA effort), although current evidence is limited.

A final note on **gender** in young people. Brain differences between genders during development in early adolescence were reported in high-profile early work (Giedd et al., 1999) but larger recent datasets question those differences (Mills et al., 2016). What is clear is that mental health differs between genders and, for instance,

[8] For reviews see e.g.(1) https://www.worldbank.org/en/topic/earlychildhooddevelopment#1; (2) https://ieg.worldbankgroup.org/sites/default/files/Data/reports/chapters/ecd-later-outcomes_overview-introduction.pdf; (3) https://www.ifs.org.uk/publications/8306

[9] This is raised for younger children in ISIS (Svirsky, 2014) and also more broadly (Bloom & Horgan, 2019).

differences in depression emerge around mid-puberty when sex hormones kick in (Blakemore, 2018). Gender also matters practically in violence and extremism for at least three reasons: (a) roles in groups like ISIS are highly gendered (Bloom & Horgan, 2019, pp. 57–58, 69–70); (b) young men are more often violent, so for instance as Figure 2 shows they dominate homicides in countries like the US and UK; and (c) work by the World Bank and others suggests the wide-ranging beneficial impacts of female education (World Bank, 2018).

Box 1 The brain from birth to adulthood

Brain volume and the specialisation of brain regions develop significantly up to mid-childhood, and then changes in the connections between areas continue well into the 20s (Sawyer et al., 2018). The brain connectivity changes also seem to happen for more low-level brain systems first (e.g. the senses or movement) so that more "executive" and "emotion" related brain systems do not fully mature until the late 20s. Indeed, while maturation of logical reasoning is considered complete by around 16 years, it takes another decade to develop more mature affect regulation, social relationships, and executive functioning.

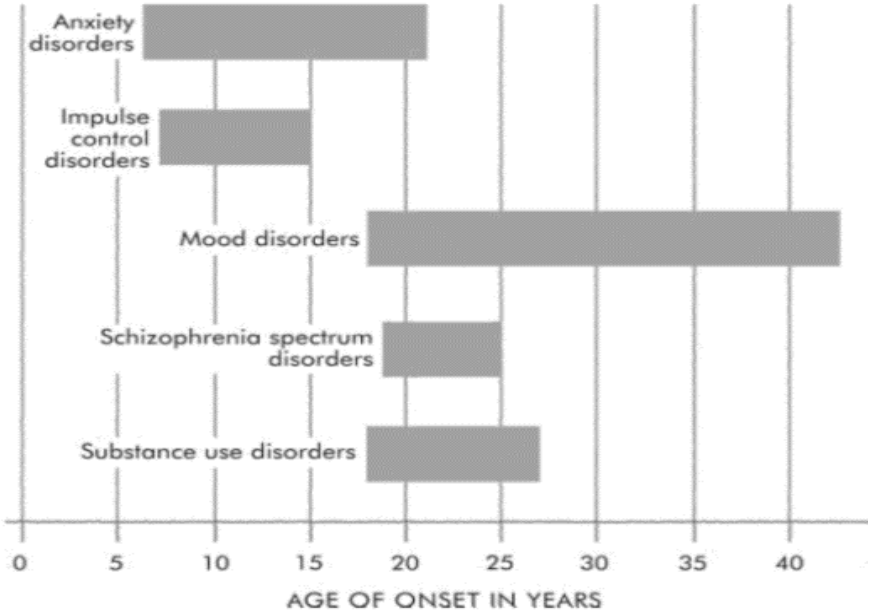


Figure 1. The distinctive ages of onset of different mental disorders further illustrate how distinct phases of brain development manifest. From (Blakemore, 2018).

Young people are both resilient and benefit from help

Baseline rates of problems often help provide perspective – and young people have a lot of problems, even in the relatively benign circumstances of the contemporary developed world. Psychiatric data provides one illustration (Maughan & Collishaw, 2015). In the developed world repeated assessments suggest well over half of young people will meet criteria for at least one psychiatric disorder by age 21. Indeed, cross-sectional surveys identify 10–12% of young people as disordered at any particular timepoint (Copeland et al., 2011). Moreover, problems in early life correlate with problems in later life, so for instance "conduct disorders" do predict future outcomes to some extent (Scott, 2015).

Of course, it is worse for young people exposed to war. One meta-analysis reported a 47% rate of Post-Traumatic Stress Disorder (PTSD), with increased rates of depression and anxiety (Attanayake et al., 2009). Traumatic events for young people in war include famine and thirst, rape or physical injury (Drury & Williams, 2012). A study of children who experienced the Rwandan genocide showed 78% experienced a family death, 70% saw someone being killed or injured, and 15% reported hiding under a dead body to escape detection (Dyregrov et al., 2000).

But children are remarkably resilient. Again, we can consider child psychiatric data. A universal finding is that long-term outcomes after all kinds of early adversity show substantial heterogeneity (Rutter, 2013). Many children achieve positive outcomes later in life despite long-lasting and severe early stressors.

Criminological data also suggests that if one can get past an age of increased violent risk-taking—seen particularly in **young men**—then violent behaviours tail off with age. As Figure 2 shows, despite radically different levels of homicide in England and Wales versus Chicago, the strikingly similar age profiles show how young men dominate homicides in both places.

Resilience is also seen in historical cases. Nazi Germany and the Hitler Youth provide a striking example of a cohort of young people who suffered terribly and received indoctrination from fiendishly masterful propagandists – but clearly West Germans eventually emerged in pretty reasonable shape.

The German experience and Hitler Youth also illustrate the distinction between beliefs and behaviour: beliefs about Nazism weren't that unfavourable for quite a while after 1945. Historian Tony Judt's well regarded book 'PostWar' describes US opinion surveys in the American zone of occupied Germany. Those surveys found that a consistent majority in the years 1945–1949 stated National Socialism to have been a good idea badly applied; that in 1950, 1 in 3 said the Nuremberg trials had been unfair; that in 1952, 37% said Germany was better off without the Jews on its territory; and in 1952, 25% had a good opinion of Hitler (Judt, 2005).

So how did things change for Germany? Massive armies of occupation from the USSR, US and Britain meant Germany could not plausibly fight again. Western powers supported a democratic Germany and provided security from external threats. Germany possessed a highly capable state and homogenous population. Finally, and perhaps most importantly, economic growth gave German people—and German young people—an outlet for pride and success. Similar conditions obtained in South Korea in the decades after 1953.

Sadly, Syria does not possess the building blocks of this German—or South Korean—route. But some basic lessons can be taken. One is that the best case scenarios like Germany or South Korea take a long time. Another is the centrality of affording young people opportunities in their lives. Although beyond CENTCOM's capability to achieve alone, CENTCOM is crucial to the constellation of allies and non-Governmental partners required to create opportunities for Syrian young people.

Recommendation Two: *CENTCOM should recognize the opportunity new generations present – and afford them opportunities for plausible non-radical or violent futures, by helping build environments with basic education and social support.*

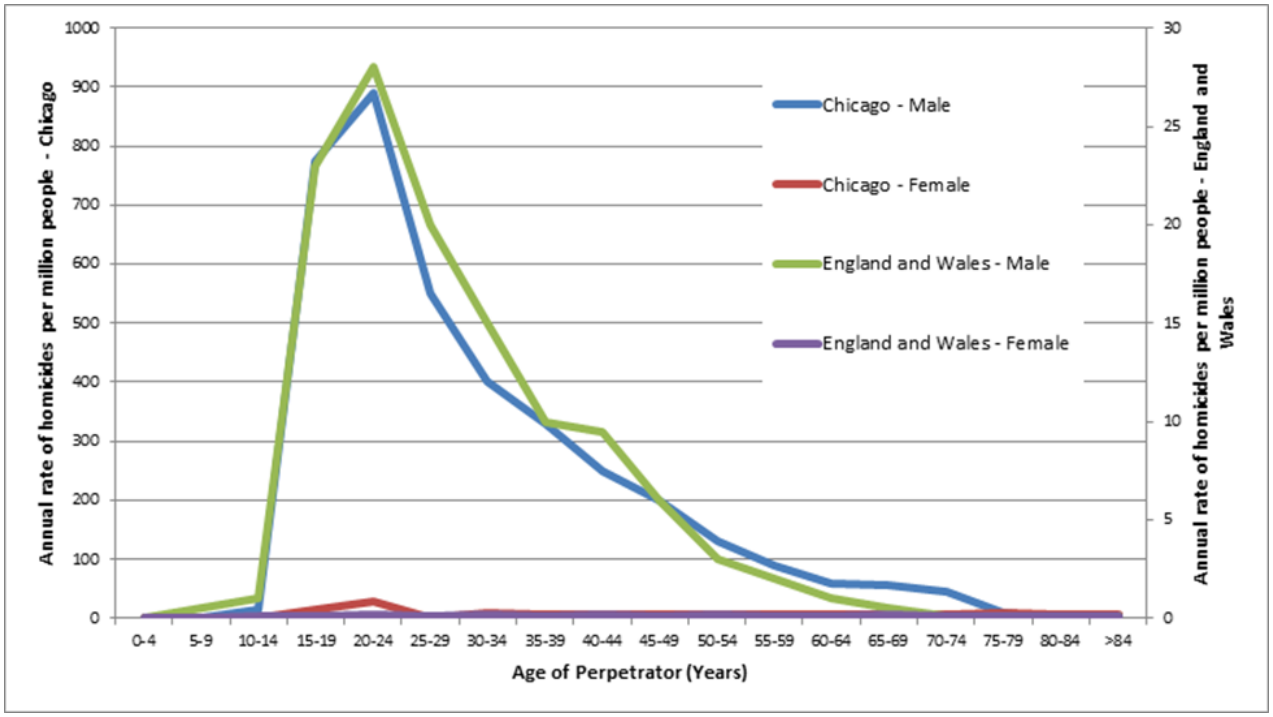


Figure 2. Homicides by age and sex of perpetrator, England and Wales compared with Chicago.[10]

Part II. Cognitive interventions – what can CENTCOM do?

Part II examines the cognitive dimensions of specific interventions. Before discussing them, I note two points.

For many of these interventions CENTCOM cannot create success by itself – but CENTCOM is often critical to provide security, funding and leadership amongst US (e.g. USAID) and other (e.g. allies, charities, local) partners. CENTCOM is often necessary but not sufficient.

Secondly, we have only limited direct evidence evaluating interventions for young refugees or IDPs in the developing world, and more specifically in the Middle East. Indeed, this limited evidence means that much excellent work[11] understandably brings together and mingles insights from across the rich and developing world settings, or across child soldiers/terrorists/radical groups, or applies analogies from criminology such as the grooming techniques used by paedophiles. Thus, here I provide convergent evidence from related fields like **mental health** and **criminology** – and I stress **dual use** aspects, e.g. providing routine is foundational in mental health everywhere, and also in deradicalization programmes in Pakistan.

[10] Reproduced from page 132 in (Pickett & Wilkinson, 2011) Originally from Cronin, H. (1991) *The Ant and the Peacock*, Cambridge: Cambridge University Press

[11] In particular the very good and wide-ranging book on child soldiers and terrorism (Bloom & Horgan, 2019). Other good reviews include (Betancourt & Williams, 2008), which highlights the limits of what was known.

Building solid foundations across diverse contexts

The Syrian conflict has produced over six million IDPs, including over 2.5 million young people (UNHCR, n.d.). Over five million refugees have fled to surrounding countries, particularly Turkey, Lebanon and Jordan. Some observers estimate that between 1st December 2019 and 20th February 2020 alone, conflict in northwest Syria displaced 900,000 people, of whom young people made up 60% of those driven from shelter (Worldvision, 2020). Very large numbers of young people from Syria live as refugees and IDPs – and crucially for policymakers this challenge is compounded by the **diverse contexts** in which they live across the Middle East. Consider three examples.

- Turkey is the largest host of refugees, with its Government recording 3,650,000 Syrian refugees with temporary protected status—44 percent of them children—in addition to others such as unregistered Syrians (Karasapan, 2019). Only 2.4 percent of Syrians are in camps, with the remainder mostly in Turkey's cities. Some 200,000 minors work informally. 40% remain outside school.
- The al-Hol camp in northeast Syria. (UNICEF, 2019) described it as home to over 70,000 people, where most "are women and children who fled escalating violence in Hajin, eastern Deir-ez-Zor. Children make up more than half of the camp's total population and are by far the most vulnerable. The harsh living situation and sudden arrival of more than 64,000 people in the camp since late 2018, have exacerbated the already pressing emotional and psychological needs of children in al-Hol."
- Within the al-Hol camp, as the New York Times described (Yee, 2019): "Conditions are especially poor in the so-called annex, where those who are neither Syrian nor Iraqi are housed, including more than 7,000 children — about two-thirds of whom are younger than 12 — and 3,000 women. Annex residents are not allowed to leave their section without a guard. The authorities have also restricted aid groups' access to the annex, making it difficult to provide much more than basics like water and food, aid workers said. As a result, children in the annex are going without school and other services. There is not even a playground."

So, how can CENTCOM break cycles of radicalisation and violence across these diverse contexts?

One important insight from public health and child psychiatry literature is "**Rose's maxim**":

> *A large number of people exposed to a small risk may generate many more cases than a small number exposed to a high risk. (Rose et al., 2008).*

Thus, breaking cycles of radicalisation and violence requires both more targeted interventions (e.g. in al-Hol's annex) and broader interventions (e.g. across Syrian and refugee contexts).

Here I hope to inform CENTCOM's work *across* these contexts, and in particular I draw attention to three recommendations that—although often strangely lacking from discussions—are critical for success.

Recommendation Three: Hierarchy of interventions should be used – first build the foundations

CENTCOM planners considering both more targeted and much broader interventions should recognize that both rest on common foundations – and efforts to break the cycle of radicalization should include these basic foundations. Indeed, resource constraints may mean these basic components are the only achievable interventions. Importantly these are also often **dual use** for educational, social or mental health programmes and so will achieve greater buy-in with partners.

Consider a crucial example: *Young people with almost nowhere to go and little to do*. Even in the *annex at al-Hol camp* addressing this problem likely matters more than building wafer-thin versions of rich world deradicalization programmes that leave young people unoccupied most of the time. Indeed, a crucial feature of well-regarded deradicalization programmes for young people—e.g. in Pakistan (Bloom & Horgan, 2019)—ensures routines that keep the young people occupied.[12] Mental health hospital treatments for young people in the rich world often rest on a foundation of routine in which "occupational therapists" are critical. I am not saying that routine is sufficient for deradicalization, but it is likely a necessary foundational component of successful interventions. As well as such extreme contexts, providing routine and places to go will also matter for young IDPs and refugees *more broadly* across diverse contexts, e.g. camps and many areas in Syria lack basic services, whilst even in Turkey many young refugees are outside many services. Put another way, the devil makes work for idle hands.

Similar arguments can be made for basic foundations such as education and interventions to build family capacities (see e.g. the report's last section below). Of course, in the longer run it is also important to help provide plausible futures – as was achieved in Germany or South Korea.

It will also be important to minimise potential for co-option of such services by extremists.

Recommendation Four: Cost-effective interventions

Cost effective interventions – use, develop and evaluate affordable and scalable interventions.

It is critical for CENTCOM to push for developing a systematic hierarchy of interventions for different resource environments, and ideally for them to be evaluated over time. This is necessary given the sheer scale of the young IDP/refugee challenge that dwarfs resources—Turkey alone reportedly spent over $35 billion on its refugees (Sazak, 2019)—and also given the huge resource constraints compared to often discussed rich world models like Denmark. An old adage in medicine applies here: "The best is the enemy of the good." Discussions of enormously well-resourced programmes in Europe can provide some pointers, but may also distract from **building, tailoring and evaluating programmes for low-resource settings.**

[12] Mia Bloom discussed routines filling the young attendees' time in the Pakistani programme during her SMA talk for this CENTCOM effort, 9th January 2020.

Global mental health provides a practical template for addressing this. Note that I am not suggesting CENTCOM use this exact hierarchy of interventions (which are designed to target mental health rather than radicalisation and violence), but it illustrates the type of process. Pioneering work in 2007 described interventions costing only a few dollars a day per person that can make material impacts in the developing world (Lancet Global Mental Health Group, 2007). The recent *Lancet Commission on global mental health and sustainable development* (Patel et al., 2018) builds a hierarchy of practical interventions depending on resource environment. For instance, it may not use expensive doctors but instead train alternative practitioners or use others (e.g. schools) to deliver services, and there may be roles for digital aides. Figure 3 shows how such hierarchies can work – and CENTCOM should push partners to build such a systematic framework, using the latest evidence, for radicalisation and violence.

Recommendation Five: Enhance the information environment

Research what young target audiences' view, and develop Arabic resources for each age (0-4, 5-12, 13-17). Trauma, lack of opportunities and other factors certainly provide fuel, but radical narratives also can channel young people towards extremism. ISIS and other actors are active in social and other media – and CENTCOM alongside other US agencies and allies has a role combatting these information operations. These capabilities are dual use.

Interacting with capable competitors like ISIS requires preparing for influence on timescales of **minutes,** such as responding to key events on social media and the 24/7 newsfeed. This requires a rapid response set within a strategic plan. At that other end of the scale, is the establishment of a healthier information ecosystem of content (e.g. Sesame Street in Arabic) and providers, which take **years** to build.

See my recent SMA report (Chapters 2-4) for detailed, evidence-based recommendations for how to create influence (Wright 2019a, From Control to Influence, www.intelligentbiology.co.uk).

Additional recommendations for interventions

Finally, I address three additional recommendations:

(1) CENTCOM should target both beliefs and behaviours (not just "radicalisation");

(2) Much of what is suggested for deradicalizing or children relates to basic principles for creating influence, and I discuss the "audience, message and messenger".

(3) Balance interventions across three types of populations of children: Universal, selective and indicated interventions

What's the aim? Behaviour and beliefs

"Radicalisation" and "deradicalization" relate to changing beliefs, but CENTCOM should be equally if not more interested in changing violent behaviours. Unlike Westerners who travelled to join ISIL in Syria, many Syrians have been caught up in a brutal civil war rather than being radicalized. Moreover, as discussed above, younger children may not genuinely acquire radicalised belief systems.

*Figure 3 A **hierarchy** of mental health services relevant to **low-resource**, **medium-resource**, and **high-resource** settings. Also, a **hierarchy** in each case with **community**, **primary**, **secondary** and **tertiary** locations. Much can be achieved even if only at the community level in low-resource settings. CENTCOM should push partners to develop an equivalent for violence and radicalization.*
Source: Lancet Commission on global mental health (Patel et al., 2018).

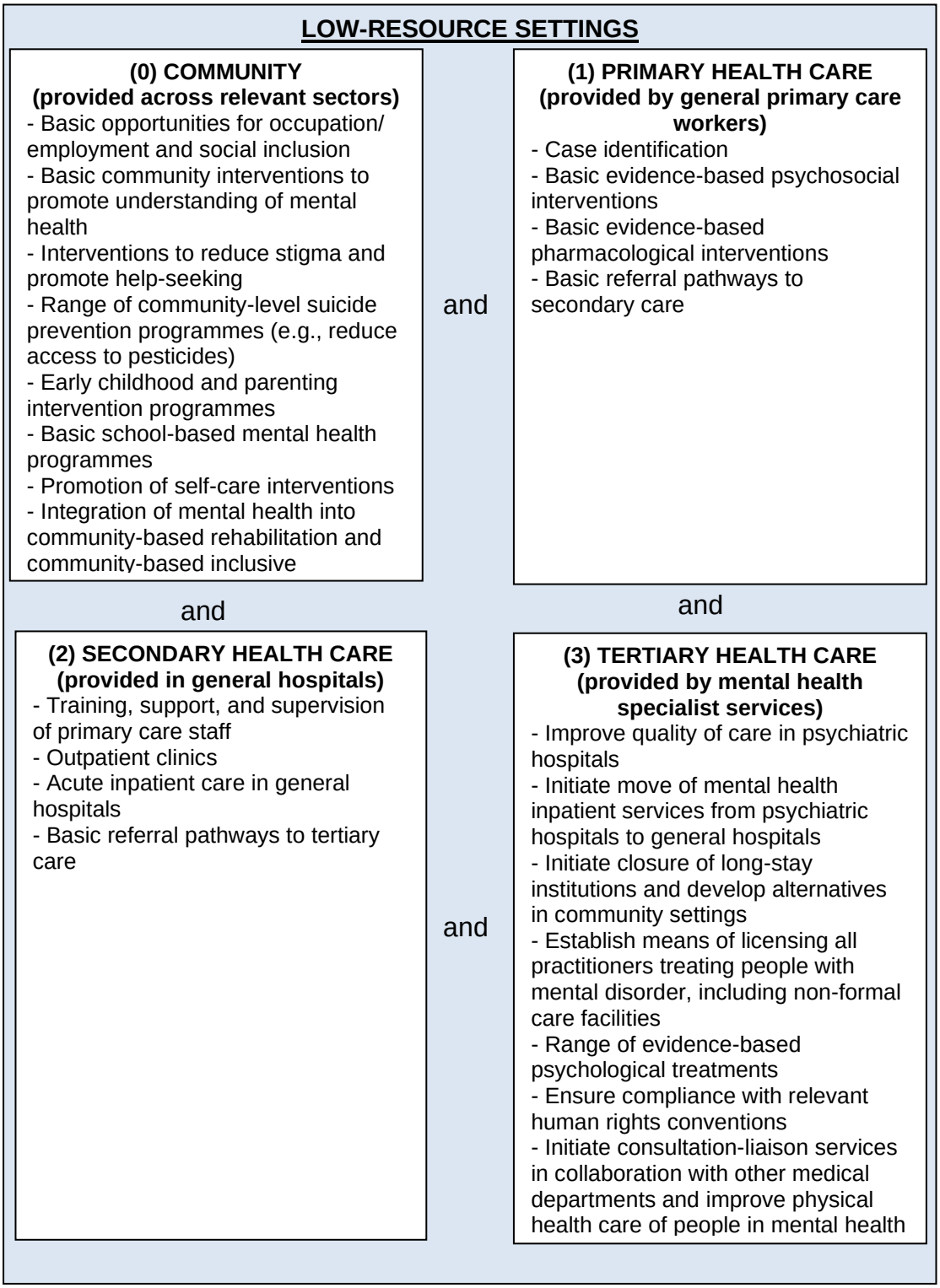
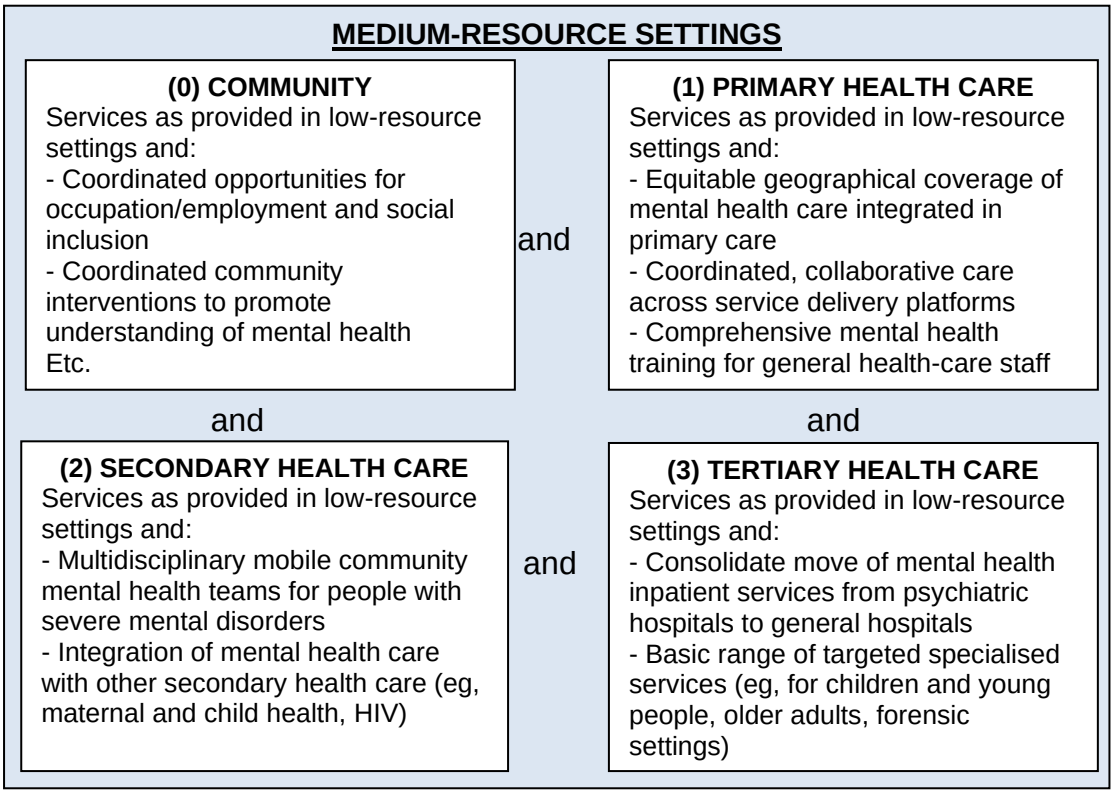
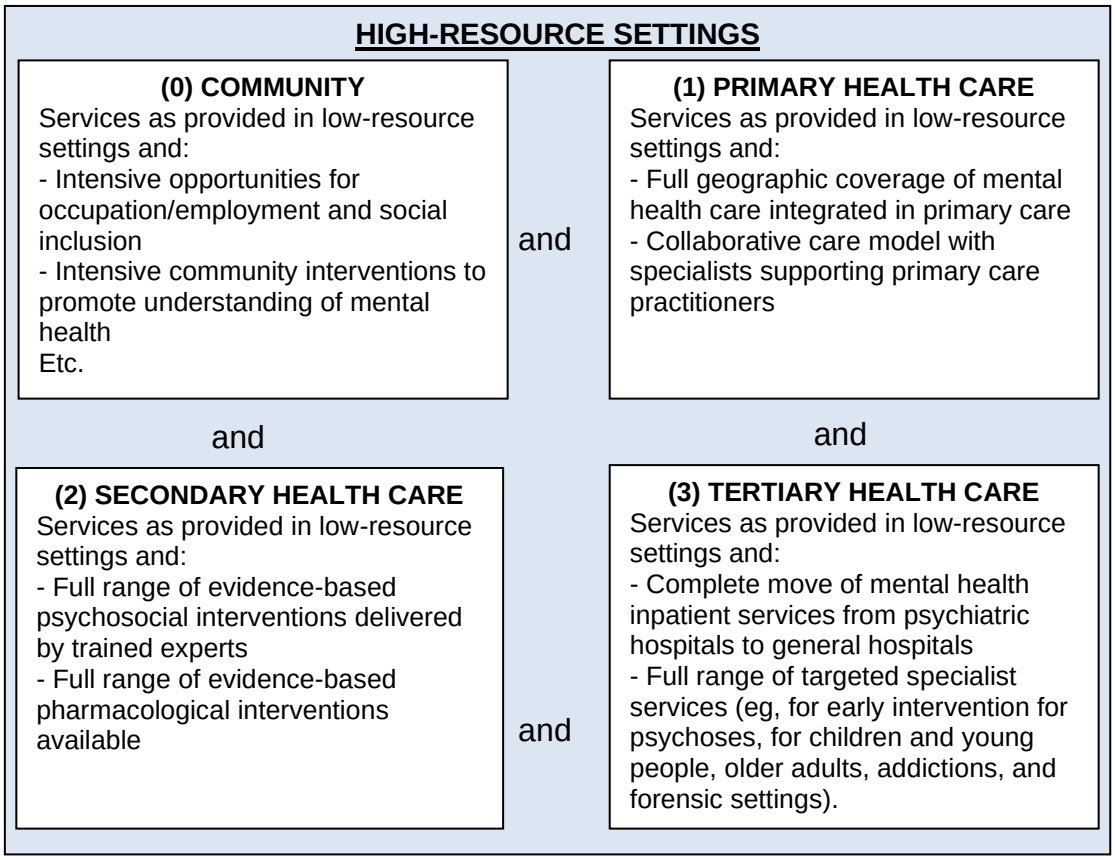


Figure 3 cont… (Note some recommendations for medium and high-resource settings are truncated here).





Key recommendations for deradicalizing children relate to the basic principles of influence

I define influence as a means to affect an audience's behaviour, perceptions or attitudes. Whatever interventions CENTCOM uses, it will be crucial to implement them effectively (See Wright, 2019a, *From Control to Influence*, Chapters 2-4 for details, www.intelligentbiology.co.uk).

Audience: CENTCOM should adopt an **"outside-in"** mindset, which makes the audience's decision-making process the focus of the influence strategy. Two key points to draw out:

- **What about cultural differences in cognition?** Some cognitive studies, including my own, have begun to compare decision-making in Middle Eastern and other populations – but so far these are too limited to provide a solid base for policy.[13] Indeed, I recently reviewed the many more cognitive studies comparing decision-making in East Asia and the West and found robust commonalities greatly outweighed differences (Wright, 2019b).
- **Creation by locals** (e.g. in Saudi-Arabia or Pakistan; (Bloom & Horgan, 2019)) **or co-creation with locals**: Whilst described as key for disengaging children, it is actually a general principle for many good influence operations.

Messages: Messages should address key audience motivations such as identity, fairness, fear or self-interest (e.g. see checklist for empathy in Wright, 2019a). Different ages may benefit more from emphasising different types of content, e.g. adolescent concerns with identity and peer pressure to "fit in."

Messengers: For many interventions CENTCOM can provide security, funding and leadership, but success requires internal (e.g. USAID) and external (e.g. allies, charities, local) partners. ***Trust*** *in messengers is often critical and is in the eye of the audience*. Multiple factors contribute, including perceived expertise, good intentions and capability. Messengers' similarity to an audience increases influence, as does "liking" of them – e.g. Sesame Street in Arabic is likely a good concept. Governments are often not the most appropriate messenger, which can be overcome by developing partnerships with trusted individuals and groups. *Messengers must be* ***capable*** *of reaching audiences.* Television, radio and social media impact may vary according to audience. **Language** is one critical factor.

Balance interventions across three types of populations of children: Universal, selective and indicated interventions

CENTCOM faces the challenge of addressing the cycle of radicalisation across diverse contexts. CENTCOM should balance efforts across different types of intervention, and the foundational aspects of interventions above (e.g. routine). I discuss these types of interventions as they relate to child psychiatry, violent behaviour and children affected by war.

[13] My research examined risk and regret in Iran, China and the UK (Li et al., 2018). That paper also describes additional relevant literature.

Child psychiatry literature: A significant insight from public health is captured by Rose's maxim: A large number of people exposed to a small risk may generate many more cases than a small number exposed to a high risk. (Rose et al., 2008).

Three types of interventions are described by (Greenberg & Riggs, 2015):

(a) *Universal interventions* target all children, are relatively low in cost, attempt to reduce a variety of risk factors, and promote a broad range of protective factors. E.g. school-based interventions to improve school structure (e.g., organizational features/rules) or family programs (parenting skills). Advantages (a) contribute to adaptive coping/resilience across an array of experiences and settings; (b) provided independent of risk status and so non-stigmatizing; and (c) address multiple behaviour problems which share overlapping risk factors.

(b) *Selective interventions* are delivered to a class of families or children because their characteristics place them at risk for later problems.

(c) *Indicated prevention* is directed at children or families that are already showing substantial and sometimes even diagnostic levels of difficulty (e.g., have received psychiatric diagnoses or have been arrested). Such programs are intensive and expensive, but may be cost-effective given the high-cost and long-term effects of such experiences.

Violence: As discussed in (Greenberg & Riggs, 2015), two comprehensive studies agreed that *universal* school-based violence prevention programs represent an important means of reducing violent and aggressive behaviour in the US and other developed countries (Adi et al., 2007).

(a) A meta-analysis examining 249 experimental studies designed to prevent aggressive and disruptive behaviour yielded significant effects (Wilson & Lipsey, 2007). Both universal interventions and targeted interventions showed sizeable effects that were not only statistically significant but likely to be of practical significance to schools as well. The authors forecast such programs would lead to a 25–33% reduction in the base rate of aggressive problems in an average school. Universal interventions showed somewhat larger effects for younger and poorer children, whilst among targeted interventions those students who showed greater problems showed greater improvements. Behavioural strategies were more effective than cognitively oriented models. Higher quality implementation showed larger effects on outcomes.

(b) A Center for Disease Control taskforce report also indicates the efficacy of universal school-based interventions for preventing violence (Hahn et al., 2007). They found fifty-three universal prevention studies. The median effect was a 15% relative reduction in violent behaviour among students who received the program, with generally bigger effects in preschool and elementary school-aged children.

Children affected by war: Work by experts on mental health interventions for children affected by war describes very similar distinctions between more universal and targeted responses – although as one thorough review concluded more evidence was needed to assess effectiveness (Betancourt & Williams, 2008, pp. 39–40). That review described:

(a) Psychosocial interventions focus on most or all the affected population regardless of differences, which are rooted in the principle that restoring as much of the prior environment as possible or providing routines, predictability and engagement is important.

(b) Psychiatric approaches identify those with mental health disorders and provide them with specific treatments to reduce symptoms and impairment in a targeted fashion.

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