



# Future Directions- Changing Reality

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Andrew Beckett CD MD MSc FRCSC FACS

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Canadian Force Health Services

Associate Professor, University of Toronto



Surgery  
UNIVERSITY OF TORONTO

# Disclosures

- Views expressed in this presentation do not reflect those of the Canadian Forces or the Department of National Defense
- No relevant financial disclosures



...wards he would be on Pentagon security committees.

## Early Life and Career

Edward Delos Churchill was born on Christmas Day, 1895, in the farm town of Chenoa, Illinois. The youngest of three children, he was clearly intelligent, graduating high school at 16. He attended Northwestern University, receiving his BS and MA in 1916 and 1917. Medical school at Harvard followed, watching fellow students don uniforms during WWI before his graduation *cum laude* in 1920. He took internship and residency at Massachusetts General Hospital, and traveled to Europe on a fellowship.

His research focused on thoracic surgery, although he considered almost all surgery a branch of general surgery. In the 1930s he pioneered advances in heart and lung surgeries. He also restructured residencies from a pyramidal model with eliminations every year to a

...went to the New York Times to pressure the Army into action. Predictably, that caused friction, but they both worked through it to improvise forward surgical hospitals to shorten the surgical delay.

...he kept going forward to see what was really happening. He visited infantry battalions, division medical companies, forward hospitals, laboratory supply depots, and the Anzio beachhead.







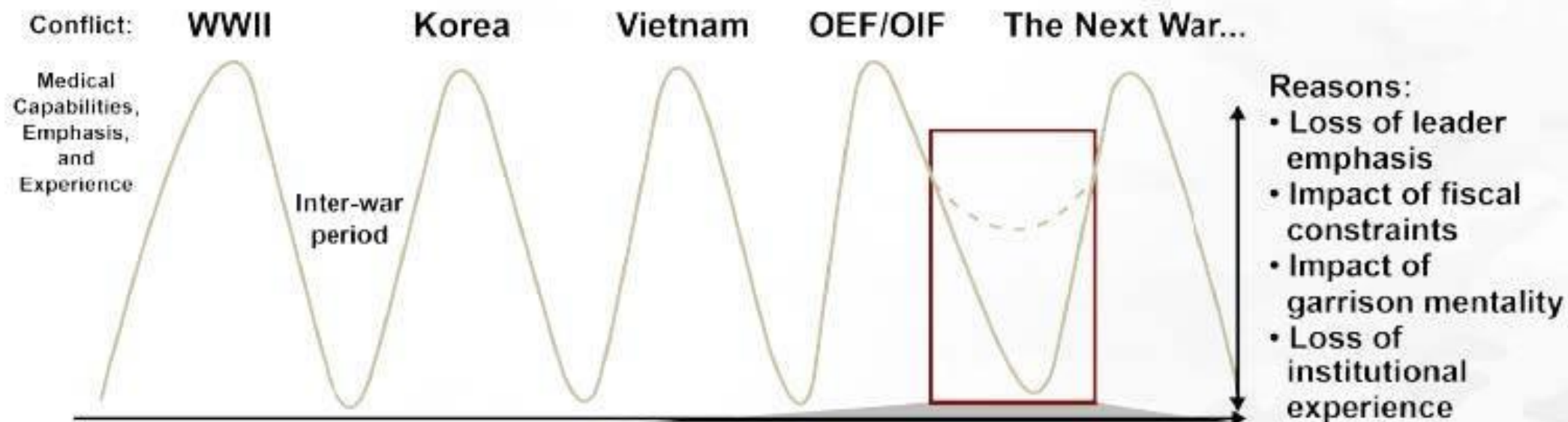


# WWII Lesson Learned?

- During the 1939-45 War the four things that contributed to saving of life:
  - 1 Blood Transfusion
  - 2 Surgical teams operating well forward
  - 3 Air evacuation direct to a base hospital, thus saving bumpy journeys by road
  - 4 Nursing Sisters working well forward in the battle area



## Past as Precedent: The Walker Dip

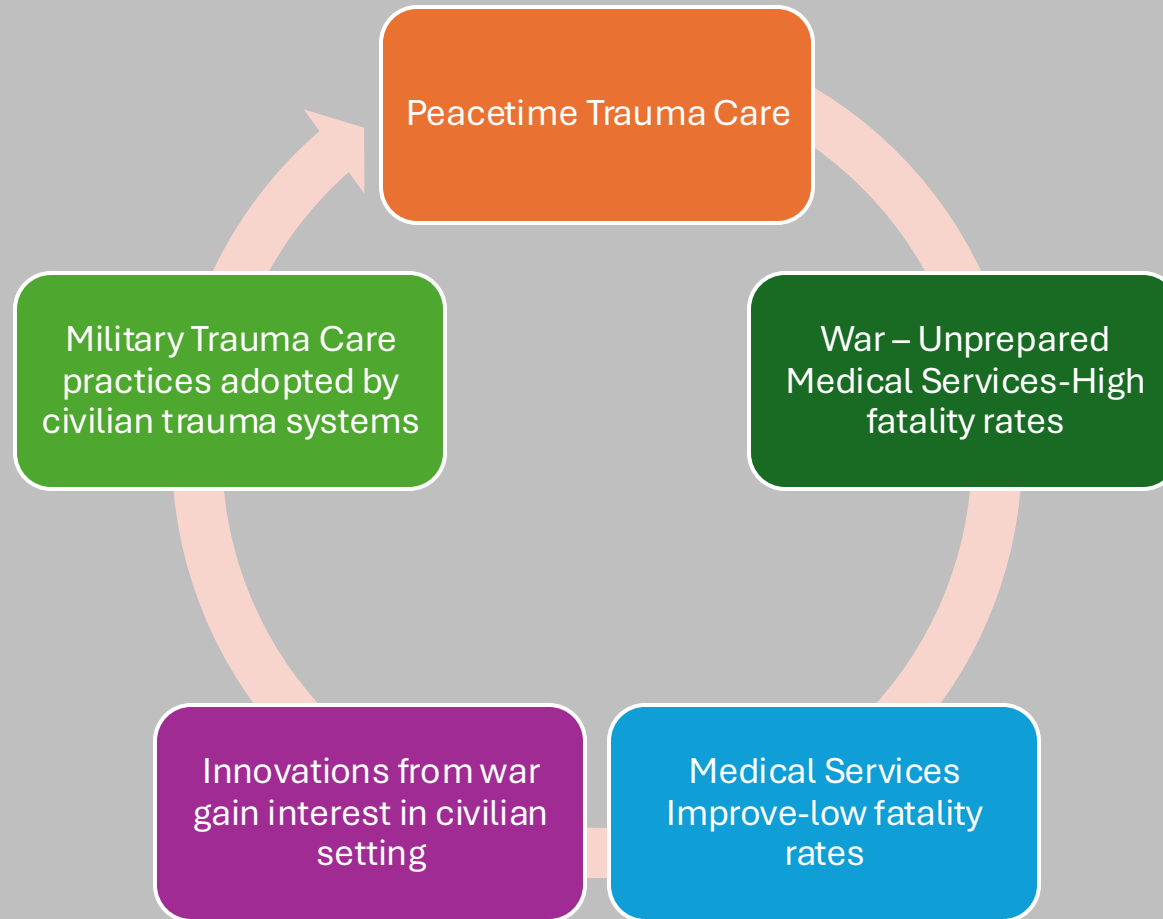


### Our (Joint) Challenge: Mitigate the Dip

- Maintain lessons learned to preserve gains made in survivability rates
- Maintain leadership emphasis on medical capabilities
- Ensure individual and collective training includes health services support under realistic conditions

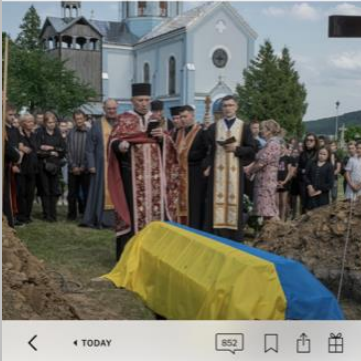
<sup>\*</sup> The basis for this graphic was taken from Surgeon Commodore Alasdair Walker, the United Kingdom's Military Health Services' Medical Director remarks to the Military Health System Research Symposium in 2013.

# Revolution Of Trauma Care



## *Troop Deaths and Injuries in Ukraine War Near 500,000, U.S. Officials Say*

Ukraine and Russia have lost a staggering number of troops as Kyiv's counteroffensive drags on. A lack of rapid medical care has added to the toll.



### NEWS ANALYSIS

## *Russia Sends Waves of Troops to the Front in a Brutal Style of Fighting*

More than 1,000 Russian soldiers in Ukraine were killed or wounded on average each day in May, according to NATO and Western military officials.

## Russia's meat grinder soldiers - 50,000 confirmed dead

17 April 2024

Olga Ivshina, Becky Dale & Kirstie Brewer  
BBC Russian

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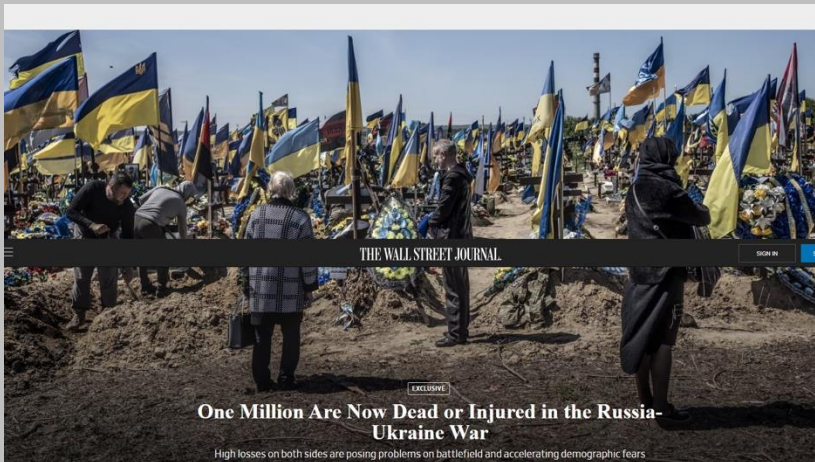


BBC

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Russia's military death toll in Ukraine has now passed the 50,000 mark, the BBC can confirm.





The Economist

Weekly edition
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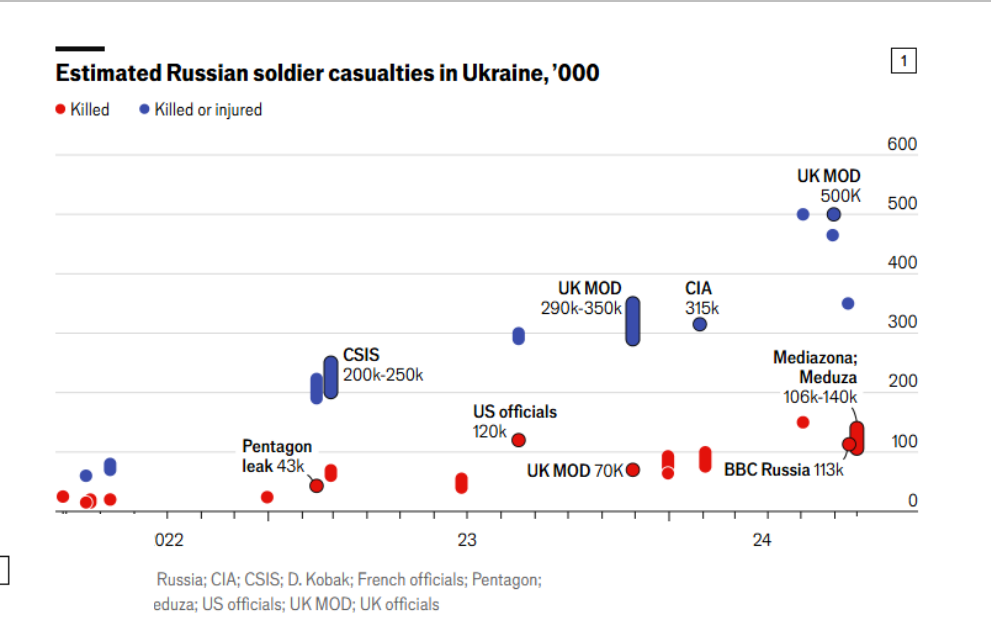
Graphic detail | The toll of war

# How many Russian soldiers have been killed in Ukraine?

Four charts illustrate a grim new milestone

Jul 5th 2024

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## INTELLIGENCE UPDATE

- The Russian Armed Forces have likely sustained approximately 900,000 casualties (killed and wounded) since invading Ukraine in 2022. Of these, it is likely 200,000 – 250,000 Russian soldiers have been killed, Russia's largest losses since the Second World War.
- Russian President Putin and the Russian military leadership highly likely prioritise their conflict objectives over the lives of Russian soldiers. They are almost certainly prepared to tolerate continuously high casualty rates so long as this does not negatively affect public or elite support for the war, and those losses can be replaced.
- Putin and the Russian leadership highly likely place significantly less value on the lives of ethnic minority Russian citizens from impoverished regions, with Russian recruitment efforts consequently focussed disproportionately on these areas. Slavic Russians from urban centres such as Moscow and St. Petersburg have contributed disproportionately fewer service personnel than their poorer, ethnic minority compatriots.

ALT

World / Asia

## Hundreds of wounded Russian soldiers treated in North Korea, envoy says

By Edward Szekeres, CNN

3 minute read · Updated 2:13 AM EST, Tue February 11, 2025

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Russian servicemen involved in the country's military action in Ukraine march on Red Square during the Victory Day military parade in central Moscow on May 9, 2024. Alexander Nemenov/AP/Getty Images

**(CNN)** — North Korea has treated hundreds of Russian soldiers injured in Ukraine, Moscow's ambassador to Pyongyang told state media, as he revealed new details of the reclusive state's backing for the Kremlin's war effort.

Wounded Russian troops have been recovering in North Korean medical facilities, Ambassador Alexander Matsegora told state-run outlet Rossiskaya Gazeta in an extensive interview published Sunday.





Rudneva estimated that 20,000 Ukrainians have endured at least one amputation since the war began. The government does not say how many of those are soldiers, but blast injuries are among the most common in a [war with a long front line](#).









# Past as Prologue

We face wars ill-prepared because we believe in the sanctity of human life, and our social structure is designed to prevent the destruction of that life.



The National Gallery of Canada

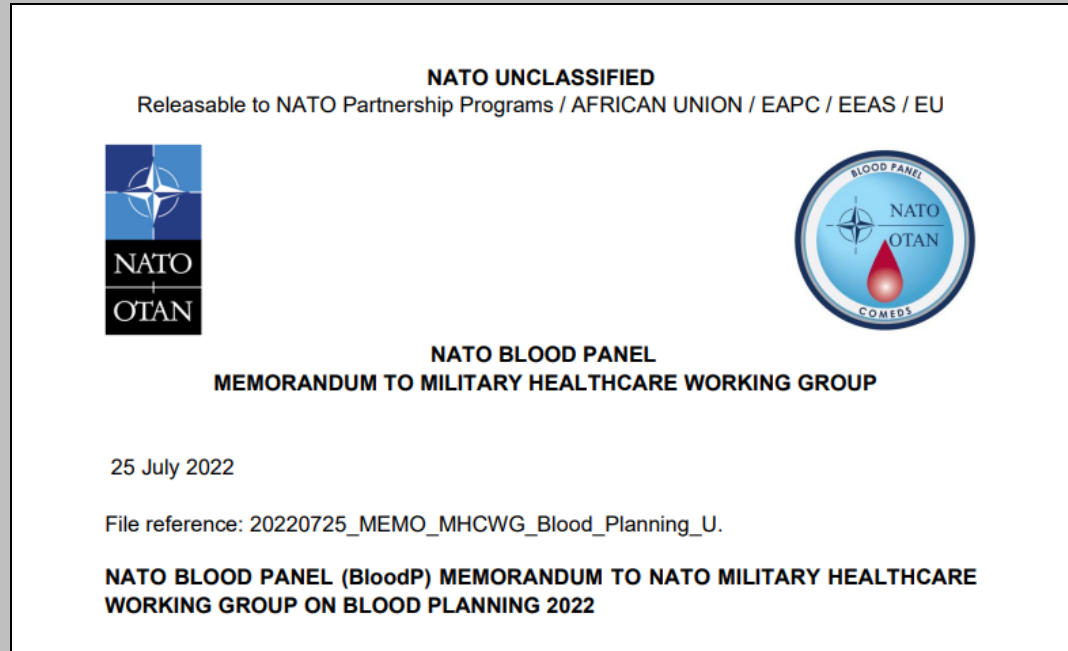
From a painting by Major W. A. Ogilvie, M.B.E.

## BRINGING OUT THE WOUNDED

Under enemy fire, casualties from the fighting in the Dittaino Valley, Sicily, are evacuated by jeep ambulance to No. 1 Field Dressing Station at Valguarnera, July 1943.

# Situation

## The Scale of the problem



Blood usage  
adds up  
quickly!

**20% of casualties will need  
blood → 8 Whole Blood  
Equivalents (WBE) each**

**Need contingency options  
prior to full combat  
operations = dried plasma,  
emergency donor panel  
(EDP) / Walking Blood Bank  
(WBB)**



## Baltic defence line



# New Realities

- Potential for General War with Large Scale Casualties
- Democracies not prepared
- Civilian Medical Systems not ready for large influx of military casualties

# New Realities

- Call up of Reserves
- Mobilization of Civil Society
- Training to integrate thousands of healthcare providers into militaries
- Training thousands of combat medics with no military or medical experience



# Impact

- The next war will not be like 2001-2021 Conflicts
- Tactical and strategic environment will very different
- Injury patterns and number of wounded will be more like WWI
- Human tissue and physiology and response to injury will be the same
- Human suffering and death will be present on a large scale
- We **will not** be ready
- The clock is running down quickly



# THOR

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THOR was born of the crucible of war (GWOT)

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Met the needs of both the medic and researchers to care for the warfighter



- THOR has been highly successful as it fused the tactical, operational, research and industry interests into one organization





# Back to the Future





# Agent of Change

- THOR brought back the lessons from past and made them safer, more efficient
- Provided the clinical evidence to change regulations eg AABB



# THOR at the Crossroads

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- Reality is Changing
  - THOR needs to Change too

