This is the 5th affidavit
of Murray Krahn in this case
and was made on 1 /April /2016

Court File No. 98-CV-141369 CP00

ONTARIO
SUPERIOR COURT OF JUSTICE

B E T W E E N :

DIANNA LOUISE PARSONS, MICHAEL HERBERT CRUICKSHANKS, DAVID TULL, MARTIN HENRY GRIFFEN, ANNA KARDISH, ELSIE KOTYK, Executrix of the Estate of Harry Kotyk, deceased and ELSIE KOTYK, personally

Plaintiffs

and

THE CANADIAN RED CROSS SOCIETY, HER MAJESTY THE QUEEN IN RIGHT OF ONTARIO
and
THE ATTORNEY GENERAL OF CANADA

Defendants

and

HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF ALBERTA
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF SASKATCHEWAN,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF MANITOBA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEW BRUNSWICK
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF PRINCE EDWARD ISLAND,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEWFOUNDLAND,
THE GOVERNMENT OF THE NORTHWEST TERRITORIES,
THE GOVERNMENT OF NUNAVUT and THE GOVERNMENT OF THE YUKON TERRITORY

Intervenors

Proceeding under the *Class Proceedings Act, 1992*

Court File No. 98-CV-146405

B E T W E E N:

JAMES KREPPNER, BARRY ISAAC, NORMAN LANDRY, as Executor of the Estate of the late SERGE LANDRY, PETER FELSING, DONALD MILLIGAN, ALLAN GRUHLKE, JIM LOVE and PAULINE FOURNIER as Executrix of the Estate of the late PIERRE FOURNIER

Plaintiffs

and

THE CANADIAN RED CROSS SOCIETY, THE ATTORNEY GENERAL OF CANADA and HER MAJESTY THE QUEEN IN RIGHT OF ONTARIO

Defendants

and

HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF ALBERTA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF SASKATCHEWAN,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF MANITOBA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEW BRUNSWICK,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF PRINCE EDWARD ISLAND
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEWFOUNDLAND,
THE GOVERNMENT OF THE NORTHWEST TERRITORIES,
THE GOVERNMENT OF NUNAVUT AND THE GOVERNMENT OF THE YUKON TERRITORY

Intervenors

Proceeding under the *Class Proceedings Act, 1992*

No. C965349
Vancouver Registry

In the Supreme Court of British Columbia

Between:

Anita Endean, as representative plaintiff

Plaintiff

and:

**The Canadian Red Cross Society
Her Majesty the Queen in Right of the Province of
British Columbia, and The Attorney General of Canada**

Defendants

and:

**Prince George Regional Hospital, Dr. William Galliford,
Dr. Robert Hart Dykes, Dr. Peter Houghton, Dr. John Doe,
Her Majesty the Queen in Right of Canada, and
Her Majesty the Queen in Right of the Province of British Columbia**

Third Parties

Proceeding under the *Class Proceedings Act*, R.S.B.C. 1996, C. 50

CANADA PROVINCE OF QUÉBEC DISTRICT OF MONTRÉAL NO : 500-06-000016-960	S UPERIOR COURT **Class action** **DOMINIQUE HONHON** Plaintiff -vs- **THE ATTORNEY GENERAL OF CANADA** **THE ATTORNEY GENERAL OF QUÉBEC** **THE CANADIAN RED CROSS SOCIETY** Defendants -and- **MICHEL SAVONITTO, in the capacity of the Joint Committee member for the province of Québec** **PETITIONER** -and- **FONDS D'AIDE AUX RECOURS COLLECTIFS** -and- **LE CURATEUR PUBLIC DU QUÉBEC** Mis-en-cause
CANADA PROVINCE OF QUÉBEC DISTRICT OF MONTRÉAL NO : 500-06-000068-987	SUPERIOR COURT **Class action** **DAVID PAGE** Plaintiff -vs- **THE ATTORNEY GENERAL OF CANADA** **THE ATTORNEY GENERAL OF QUÉBEC** **THE CANADIAN RED CROSS SOCIETY** Defendants -and- **FONDS D'AIDE AUX RECOURS COLLECTIFS** -and- **LE CURATEUR PUBLIC DU QUÉBEC** Mis-en-cause

AFFIDAVIT

I, MURRAY KRAHN, MD MSc FRCPC, of the Department of Medicine and Faculty of Pharmacy, University of Toronto, located at The Toronto General Hospital, EN14-207, 200 Elizabeth Street, Toronto, Ontario, M5G 2C4, Canada, SWEAR (OR AFFIRM) THAT:

1. I am a Specialist in Internal Medicine, and Full Professor and F. Norman Hughes Chair in the Faculties of Medicine and Pharmacy at the University of Toronto, as well as Director of the Toronto Health Economics and Technology Assessment Collaborative. I am also the senior member of what is known as the "medical modeling working group". The medical modeling working group has provided the Joint Committee of the 1986-1990 Hepatitis settlement agreement with medical modeling, expert advice and reports for the purposes of the triennial fund sufficiency reviews under that settlement agreement. For the fund sufficiency review triggered at December 31, 2013, the medical modeling working group revised the prognostic model and prepared a report entitled "Estimating the Prognosis of Canadians Infected with the Hepatitis C Virus Through The Blood Supply, 1986-1990: The Fifth Revision of Hepatitis C Prognostic Model Based on the Post-Transfusion Hepatitis C Compensation Claimant Cohort". A copy of that report is attached as Exhibit "A" to my affidavits sworn March 16, 2015.

2. I confirm that I am aware that in making this affidavit my duty is to:

   (a) provide opinion evidence that is fair, objective and non-partisan and related only to matters within my area of expertise; and

   (b) to assist the court and provide such additional assistance as the court may reasonably require to determine a matter in issue.

3. I am aware that the foregoing duties prevail over any obligation I may owe to any party on whose behalf I am engaged and I am aware that I am not to be an advocate for any party. I further confirm that if called upon to give oral or written testimony, I will give such testimony in conformity with these duties.

4. I have been asked by the Joint Committee to review the affidavit of Dr. Sam Lee affirmed January 26, 2015 in these proceedings to comment on certain paragraphs of the affidavit.

5. At paragraph 13 of Dr. Lee's affidavit he discusses the fourth revision (2011) and the fifth revision (2014) of the medical models prepared by the MMWG, and he states that the fifth revision's "mode of presentation focuses on the percentage of patients progressing to cirrhosis rather than the average time required for patients to progress through the disease stages from infection to cirrhosis". The fifth revision of the medical model medical did not materially change the nature of the model's outputs. In my experience, clinicians focus on the natural history of HCV in mean number of years elapsed between stages. This is how the natural history is represented in most textbooks and review articles. Some types of disease history models, such as discrete event simulation models, also represent prognosis this way. The models we use, however, are state transition models, which represent the mean proportion of a cohort that transitions between stages within a given cycle. Either way of representing the natural history of disease is equally valid, and each relevant statistic (mean duration between stages, mean cohort proportion that transitions for each cycle) can be calculated from the other. For those who like to represent prognosis as mean sojourn time between stages, it is possible to calculate that from our data.

6. At paragraphs 36-39 and 41, Dr. Lee discusses spontaneous viral clearance (SVC). In paragraph 39 Dr. Lee talks about spontaneous viral clearance of an acute HCV infection. Acute HCV infection is the period between infection with the virus and about 6 months after infection. At paragraph 36 Dr. Lee says that SVC "usually takes place within one year of exposure to HCV". In preparing the medical models over the several revisions, the MMWG has reviewed extensive literature on SVC. In my opinion, SVC almost invariably takes place within a year. In the report on the fourth revision (p. 33), the MMWG says "It is not even clear that ***any*** seroconversion takes place after the acute period. All seroconversion may be taking place during the acute infection period." However, the fourth (and fifth) revisions assume a very low but non-zero rate of SVC (see Table 12 in fifth revision).

7. In paragraph 58 of Dr. Lee's affidavit, he states that he disagrees with the portion of the fourth medical model revision estimating the proportion of the cohort which will progress to cirrhosis because in his views those numbers do not take into account the "tremendous increment in antiviral cure rates from 2011-2014." Work on the fourth revision of the medical model was commenced in 2010 and completed in April 2011 before any of the direct antiviral drugs were

approved for use in Canada. The first two direct antiviral drugs, telaprevir and boceprevir, were approved for use in Canada in August 2011. It is correct that the fourth revision does not take into account events which occurred between 2011 and 2014 after it was completed but the fifth revision, which was completed in September 2014, does take into account events up to and including in 2014 including antiviral drug therapy. However, this is a very rapidly moving field and the actual clinician practice patterns in the near future (from today) may be different from those reported in the clinician practice patterns survey that informed our treatment rate projections in the fifth revision.

8. The estimates of the proportions of patients progressing to cirrhosis and liver related death which Dr. Lee disagrees with in the fourth revision decreased markedly in the fifth revision which takes into account treatment with direct anti viral drugs. The rates in the fourth and fifth revisions respectively are:

(a) non-hemophilic patients alive who will progress to cirrhosis:

(i) fourth revision – 34.5% of non-hemophilic patients alive in 2010 will progress to cirrhosis by 2060;

(ii) fifth revision – 16.4% of non-hemophilic patients alive in 2013 will progress to cirrhosis by 2060 and 16.5% by 2070;

(b) non-hemophilic patients alive who will die of liver disease:

(i) fourth revision – 20.4% of non-hemophilic patients alive in 2010 will die of liver related causes by 2060;

(ii) fifth revision – 11.3% of non- hemophilic patients alive in 2013 will die of liver related causes by 2060 and 11.6% by 2070;

(c) hemophilic patients alive who will progress to cirrhosis;

(i) fourth revision – 51.6% of hemophilic patients alive in 2010 will progress to cirrhosis by 2060;

(ii) fifth revision –31.2% of hemophilic patients alive in 2013 will progress to cirrhosis by 2060 and 31.2% by 2070;

(d) hemophilic patients alive in 2013 will die of liver disease:

(i) fourth revision – 35.6% of hemophilic patients alive in 2010 will die of liver related causes by 2060;

(ii) fifth revision – 24.5% of hemophilic patients alive in 2013 will die of liver related causes by 2060 and 24.9% by 2070.

9. At paragraph 42 of Dr. Lee's affidavit, he states that most of his patients belong to the "non-transfused general population … rather than the transfused group eligible for compensation under the Settlement". He does not state what proportion, if any, of his patients are hemophilic patients who acquired HCV infection through infusion of blood products. Such patients are a significant subset of the 1986-1990 Settlement Agreement cohort which the medical model addresses. At paragraph 61, Dr. Lee estimates the stage distribution of his patients (although he does not say at what point in time or how long after infection this distribution is estimated). The stage distribution, as at August 31, 2013, of the non-hemophilic and hemophilic settlement class members are as follows (see tables 4.2 and 4.1 of the report on the fifth revision):

(a) non-hemophilic 17.5%, hemophilic 15.8% at Metavir F0, RNA – (disease level 1);

(b) non-hemophilic 33.2%, hemophilic 20.3% at Metavir F0, RNA + (disease level 2);

(c) non-hemophilic 26.9%, hemophilic 17.8% at Metavir F1/F2 (disease level 3);

(d) non-hemophilic 10.7%; hemophilic 23.3% at Metavir F3 (disease level 4);

(e) non-hemophilic 8.6%; hemophilic 18.1% at Metavir F4, compensated cirrhosis (disease level 5);

(f) non-hemophilic 1.7%; hemophilic 2.9% at Metavir F4, decompensated cirrhosis (disease level 6);

(g) non-hemophilic .5%; hemophilic 1.3% with hepatocellular cancer (disease level 6); and

(h) non-hemophilic .7%; hemophilic .6% post liver transplant (disease level 6).

SWORN (OR AFFIRMED) BEFORE ME)
at Toronto, Ontario, on 1 /April /2016.)
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A Notary Public or Commissioner for
taking Affidavits in Ontario

Kathryn Podrebarac

MURRAY KRAHN